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NAVY FAMILY HOUSING: A STUDY OF ADEQUACY STANDARDS AND THEIR RELATIONSHIP TO THE VARIABLE HOUSING ALLOWANCE

by

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This thesis investigates the current Navy and DOD policies regarding the Navy Family Housing and Variable Housing Allowance (VHA) programs. The study involved; (1) a comparison of civilian and Navy standards of adequacy for family housing, (2) an examination of the VHA rate production process, and (3) an analysis of Navy standards of adequacy for family housing and the ability of VHA to provide service members the opportunity to obtain civilian housing which meets those standards of adequacy. This study concludes that the VHA program does not ensure that service members relying on the civilian community have the opportunity to obtain family housing that meets the Navy's standards of adequacy. Recommendations are made to change this condition and, thereby, create equal housing opportunities for families living both on- and off-base.

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Navy Family Housing: An Analysis of Adequacy Standards
and their Relationship to the Variable Housing Allowance

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## ABSTRACT

This thesis investigates the current Navy and DOD policies regarding the Navy Family Housing and Variable Housing Allowance (VHA) programs. The study involed; (1) a comparison of civilian and Navy standards of adequacy for family housing, (2) an examination of the VHA rate production process, and (3) an analysis of Navy standards of adequacy for family housing and the ability of VHA to provide service members the opportunity to obtain civilian housing which meets those standards of adequacy. This study concludes that the VHA program does not ensure that service members relying on the civilian community have the opportunity to obtain family housing that meets the Navy's standards of adequacy. Recommendations are made to change this condition and ,thereby, create equal housing opportunities for families living both on- and off-base.

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# I. INTRODUCTION

## A. PURPOSE

This thesis is a study of the current Navy and DOD policies regarding Navy family housing and the Variable Housing Allowance process. The relationship between these two programs is important in the fulfillment of one DOD goal: to provide all military members and their families with adequate and economical housing. Adequacy of housing applies to both on-base and off-base housing, but the way in which it is defined varies between the military and the civilian community. By comparing the two definitions it becomes evident that the level of adequacy achieved in on-base military housing varies from the level that is readily available in the community. If a service member is entitled to a specific standard of on-base housing, is he then entitled to that same level if he must live off-base? Written policy says yes, but the current method of compensation doesn't allow for this. This issue is addressed by reviewing the assignment of the Variable Housing Allowance (VHA) and determining if the policy ensures that service members obtain off-base housing that meets the Navy's idea of adequate.

## B. LIMITATIONS

Policies relating to military housing and housing allowances are quite extensive due to the different dependency status' and locations of operations. The scope of this thesis is limited to consideration of Navy family housing within the continental United States (CONUS). Family housing issues apply only to those service members who receive basic allowance for quarters (BAQ) with dependents. No consideration is given to housing standards or allowances for those service members who are single and have no spouse or children. Additionally, policies relating to overseas locations are beyond the scope of this thesis.

## C. CHAPTER OUTLINE

1. Chapter II contains a history of military family housing and compensation. It examines the development of attitudes, policies, and public laws which resulted in various approaches to military family housing and housing allowances.

2. A discussion of how housing adequacy became an issue is contained in Chapter III. It also looks at the importance of defining the standard and details the various attributes that make up the overall definition of adequacy within the civilian community.

3. By comparison to the civilian community standards, Chapter IV details the many attributes that define or set the minimum standards of adequacy in Navy family housing.

4. Chapter V outlines the VHA program by providing background on the policy development and explaining the current method by which VHA rates are established.

5. Chapter VI provides an assessment of the current military standards of adequacy, both their usefulness and their relationship to civilian standards. Additionally, it contains an assessment of the current method of determining compensation for service members who rely on private sector housing thereby questions whether the policy is equitable for all service members.

6. Conclusions drawn about the effectiveness and usefulness of current housing policies are presented in Chapter VII along with recommendations for possible improvements.

## D. CONCLUSIONS AND RECOMMENDATIONS

While detailed explanations can be found in Chapter VII, a brief summary of findings and recommendations is provided here.

1. There is no military control over the quality of civilian housing in which a service member lives.

2. VHA rate determination does not consider issues of adequacy.

3. Modifications to the variable housing allowance survey should be made to allow for consideration of adequacy.

4. Change the VHA rate equation to eliminate mandatory absorption of costs by the service member.

5. Change the fair market value calculation for county cost groups to ensure consistency with VHA rate calculations.

## II. A HISTORY OF MILITARY FAMILY HOUSING AND COMPENSATION

### A. EARLY HISTORY

Since the early days of this country's existence, provisions for food and shelter have been granted to military personnel. Initially, when the military was a part time militia of farmers and merchants, service members lived at home. As the military grew from a revolutionary militia to an established army mobilized over an ever increasing geographic area, the Government recognized the need to establish some form of organized facilities, including housing, from which the Army could operate. That need was first formally addressed in 1782, when Congress passed legislation that authorized a Major General to be provided one four horse drawn covered wagon and one two horse drawn covered wagon [Ref. 1].

Military family housing was apparently not an issue in these early days of the military. When troops were mobilized to the field, tents and other temporary shelter provided housing. As well, the Army often relied upon a practice of "requisitioning" local community housing. Servicemen were expected to be separated from their families while performing their military service, but if they chose to have family members accompany them, then family housing was up to the individual soldier.

By the early 1800's, on-station family quarters began to be constructed as new military posts were built throughout the expanding United States. Quarters were built specifically for commanding and other key officers who, because of the importance of their positions, were required to reside on-base. These quarters were built for the benefit of the Government as an essential element of military discipline and protection rather than for the convenience and comfort of the occupant [Ref. 2].

The first Navy family residence was constructed in 1802 for Captain Thomas Tingey, the first Commandant of the Washington Navy Yard. Other

similar housing soon followed at shipyards and naval bases in Norfolk, Philadelphia, Brooklyn, Boston, and Portsmouth; and many are still in use as housing or historical exhibits [Ref. 3].

## B. EARLY HOUSING COMPENSATION

As early as 1813 the Army authorized a quarters allowance for its personnel. This action is seen as a response to a need generated by an increase in Army strength from 6,686 men in 1812 to 19,036 men in 1813. Though congress had authorized an end strength of 35,603 for the War of 1812, efforts to recruit to that level were unsuccessful. Congress responded by creating incentives such as increased pay and reduced enlistment terms, and by providing allowances for quarters. These measures resulted in increased recruitment, and an end strength of 27,000 men was eventually reached and subsequently maintained until the outbreak of the Civil War [Ref. 2:p. 13].

During the Civil War the Union Army and Navy rose to over one million men, but subsequently decreased to 76,000 in 1866. It was during this period that military family housing and housing compensation needs became an important consideration for congress. Military end strength was at a new high, the Army and Navy were continuously increasing their geographic boundaries of responsibility, and military installations began to grow more permanent. By legislation of 1866, congress repealed an act of 1835 which had eliminated the allowance for quarters, heat and light previously available to naval officers. To implement this legislation, Secretary of the Navy Gideon Wells issued General Order 75 which established a family quarters allowance equal to one third of pay for officers who could not be provided with family quarters on shore stations. This order was a significant departure from precedent, as quarters allowances were now related to base pay, while they had previously been set at a specified "going rate" for an area. [Ref. 1:p. 35]

General Order 75 remained in effect until 1899, when regulations were revised by 30 Statute 1007 which for the first time, provided an allowance for family housing with rates that varied to match rents at various geographic locations throughout the country. In addition to the housing allowance, allowances for heat and light were provided which again, responded to local rates. One notable provision of the law was an authorization for a specific number of rooms for each grade of officer. The uniqueness of 30 Statute 1007 was that officers could choose community housing with the number of rooms authorized for their grade, and be compensated for the rent paid, regardless of geographic location [Ref. 1:p. 35].

As new Navy shore stations were constructed, more permanent family housing was built on-base for commanders and other key officers. All remaining personnel lived off-base and the reliance on community housing was confirmed as the primary practice of housing military families. It was not until 1915 that the government began to recognize the family housing needs of enlisted men. In March 1915 an act was passed that allowed enlisted men a commutation for quarters at a rate of $15 per month with heat and light allowances also provided at varying rates, similar to that of officers [Ref. 1:p. 35].

## C. FAMILY HOUSING, WORLD WAR ONE TO WORLD WAR TWO

The policy of providing on-station quarters for only key personnel continued into the early 1900's. In fact, up until the beginning of the first World War, records show that the Navy inventory consisted of only 289 houses, all of which were designated for Commissioned and Warrant Officers. Adequacy was apparently not a major consideration in the construction of these units. Though no records exist which address issues of adequacy, the continued existence of many of these units is evidence that, in terms of size and quality of construction, even by today's standards, those houses were sufficiently adequate when they were built.

During the WWI period, two important legislative additions supporting the military housing program were enacted. First, in August 1916 congress passed an appropriation which provided $2,000,000 to the military to support the families of enlisted men recruited or drafted into the service. This appropriation was a response to the fact that many men were asked to give up higher paying jobs to join the pre-war military build-up, a commitment which in many cases left families financially burdened and unable to pay mortgages and rents. Compensation for families was limited to not more than $50 per month, and not more than the difference between a serviceman's pay and what he had been contributing to the family at the time of his recruitment or draft [Ref. 4]. The second notable legislation of the war period was enacted in 1918 and required the government to provide on-base quarters for the dependents of commissioned officers who were "over there" in Europe or other overseas locations. If on-base housing was not available, families were to be paid a commutation for quarters [Ref. 4:p. 20].

The end of the system in which compensation covered rent, heat and light at varying rates came in 1935. The Senate Subcommittee for Pay and Allowances for Fiscal Year (FY) 1936 appropriations saw the existing uncapped rates as being too expensive, and consequently voted to change housing compensation to a "fixed" allowance system. Regardless of fair market rates, the new allowances had a ceiling of $20 per month with rates adjusted downward for different locations. Gone were the independent allowances for heat and light, servicemen were now expected to keep utility expenses within the limit of their housing allowance, or to pay the difference "out of pocket." This marked the end of market responsive allowances until the introduction of the Variable Housing Allowance program in 1980.

Immediately prior to World War Two, construction of government quarters continued modestly, aided by the Work Progress Administration (WPA) and Federal Works Agency (FWA) programs. By 1939, the total armed

forces housing inventory was 25,000 units [Ref. 5]. The military was now providing housing for more than just commanding and other key officers. With the onset of the national defense build up of 1940, quarters to house increasing numbers of military personnel and their families as well as civilians entering the defense industry became an important consideration. To meet new requirements, the first "Defense Housing" was authorized by Public Law 76-671 of 28 June 1940 which provided rental housing for persons in the military and defense activities. This housing was to be constructed by civilian contractors and leased to and operated by the Navy and War Departments, with the title remaining with the U.S. Housing Authority. The Bureau of Yards and Docks was designated by the Secretary of the Navy as responsible for the development and operation of all defense housing facilities under Navy cognizance [Ref. 4:p. 22].

The defense housing constructed during this period was simple in nature, essentially built to be temporary, not to exceed $3,500 per unit, and after the war was to be sold as salvage. By the end of 1940, the Navy had been appropriated a total of $56,822,500 to construct defense housing. In 1941, additional public laws 7, 73, and 352 were passed authorizing the Navy to acquire land and construct housing at military installations and near defense plants [Ref. 6].

### D. HOUSING DEMANDS DURING WORLD WAR TWO

In 1942, after the U.S. entered WWII, critical shortages of materials and manpower occurred. Because the emphasis of material and labor needed to be focused on ships, aircraft, and other military equipment and hardware, the Navy and War Departments essentially stopped the construction of defense housing. The housing that was constructed was primarily quarters for officers and barracks for enlisted men training to go to the war theater; families were encouraged to remain at home.

To illustrate the tremendous change in the size of the military during WWII, consider that the Army and Navy stood at 335,000 in 1939, with a

total military housing inventory of about 25,000 units. By 1945 the military strength had grown to 12 million.

As the war progressed, a serious morale problem developed for servicemen who wanted their families with them when they returned to the states for leave. Regulations allowed Navy servicemen 30 days furlough before returning to the war theater, but while they were in the states, no quarters on or near base were available for them and their families [Ref. 7]. The only option servicemen had was to spend much of their leave time travelling by train or bus to and from their families. The Navy's response to this problem was to develop the "Homoja" program. Enacted on 27 September 1943 with the approval of the Secretary of the Navy, the first 1,000 units of transient quarters were to be constructed on naval bases throughout the U.S. for Navy personnel and their families. Homoja units were 960 square feet metal Quonset Huts with living room, kitchen, bath, and bedrooms, and were completely furnished for light housekeeping.[1] Because of their spartan nature, Homoja units were not considered suitable for permanent occupancy, so residence in these units was limited to 60 days. A total of 6285 Quonset Huts were built before the war's end.

After the end of the war in the European theater, thousands of civilian and military personnel were transferred to the west coast of the U.S. to help execute the war with Japan. At the time, many west coast installations such as Bremerton, Washington and Port Hueneme, California were not within well developed areas that could offer adequate family housing. With funding and materials once again available for construction, an program, the Navy-Federal Public Housing Agency's Defense Housing Construction Program was started in late 1944 to provide over 10,000 family housing units at 70 locations in California, Oregon, and Washington [Ref. 2:p. 22]. These units were "standard design houses

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[1]The name Quonset Hut was taken from the Naval Construction Battalion Center at Quonset Point, Rhode Island where Civil Engineers developed the barrel shaped corrugated shells.

consistent with best livability, low cost, and construction speed" built at an average cost of $3,750 per unit.

## E. NAVY FAMILY HOUSING AFTER WORLD WAR TWO

The immediate years following World War Two were relatively inactive in terms of family housing construction. The war had brought about however, several changes in the personnel force making up the Navy. Numerous technical innovations developed during the war required the retention of specially trained personnel, and the occupation of Japan and several European countries required a navy larger than pre-WWII levels. Additionally, the Navy was now made up of a much higher percentage of married men. Consequently, despite large overall cutbacks, the Navy maintained a post-war manning level of about 1.5 million men, about four times its pre-war strength. However, it wasn't until 1949 that the "dust settled" and the Navy realized it was plagued with an acute shortage of family housing.

Before the war, the relative insignificance of the Navy's family housing program was attributed to "the relative stability in the level of military personnel, their longer tenure of assignment at an installation, and the smaller ratio of married personnel in the Navy...with a less frequent relocation of families" [Ref. 2:p. 23]. To meet the post-war demand for family housing, congress passed Public Law 81-211 in August 1949 as an amendment to the National Housing Act of 1937. The Wherry-Spence Act as it was called, authorized 60,000 units of family housing in its first year. Of these, the Navy was authorized 15,000 at 23 shore installations. The Wherry program was unique in that it authorized privately financed housing projects to be constructed on government owned land on or near military installations. The land was to be provided to private project sponsors who would arrange financing (under FHA insured mortgages); construct and then operate the projects. The Military then leased the projects back from the sponsors. Though the program was

originally enacted for one year, it was extended several times until, by 1954, 83,000 units had been constructed at an average cost of $9000 each.

Although the Wherry Act was viewed by many as a successful solution to the military's acute housing problem, projects completed under this act were often of questionable quality, and more frequently, were inadequately maintained. None the less, the Wherry program survived until 1955 when it was abandoned for a successor program under the Capehart Act. By this time, the military family housing inventory had grown to approximately 224,000 units. Of these units, 47,000 were Defense Housing units and were considered inadequate, 48,500 were temporary, 87,500 were Wherry units, and the remainder were other permanent units [Ref. 2:p. 28].

The Capehart Housing Act, made public law in 1955, was similar to the Wherry program in that it authorized the construction of military family housing on government owned land by contractors who obtained FHA insured private financing. The Capehart program was different in that the government took title and assumed the mortgages and operation of the projects upon completion of construction. It was originally a one year authorization of 100,000 units to be constructed over a five year period at an average cost of $13,500 per unit. The program was later amended to extend to 1963. During its first three years, about 56,900 Capehart units were constructed. However, budget constraints in the programs later years allowed DOD to construct only an additional 58,000 units out of 85,500 requested. The program was terminated on 1 October 1962 because of its apparent high cost (due to high mortgage interest rates being assumed by the government) as compared with housing that could be built with appropriated funds.

In 1963, minor adjustments were once again made to regulations governing housing allowances. Allowances for officers and enlisted were still set according to paygrade, but now, additional delineation in rates was made to provide members additional compensation for each of their dependents, up to three. Though BAQ rates were adjusted annually as

required for cost of living increases, the system essentially did not change again until 1980 when the VHA program was introduced. The VHA program is discussed at length in Chapter V.

## F. APPROPRIATED FUND HOUSING

Secretary of Defense McNamara requested from congress authorization for 12,100 units of family housing in the FY64 Military Construction Program request, and 12,500 units each year from FY65 through FY68. As justification, Secretary McNamara pointed out that 49,000 military were involuntarily separated from their families because adequate family housing was not available to them, 32,000 families were living in what was then considered substandard government quarters, and 106,000 families were living off-station in what was considered to be inadequate quarters. Congress however, only partially supported the secretary's request, authorizing only 7,500 units each in FY64 and FY65 [Ref. 2:p. 33].

Housing constructed with appropriated funds has continued from the 1960's to the present. The number of units constructed with appropriated funds remained steady throughout the 1970's, but then declined in the 1980's when alternatives to appropriated funding became more desirable. Despite military cutbacks following the Vietnam War, the construction of new housing in the 1970's was seen as necessary, partly due to an existing national housing shortage, but more importantly as an incentive for retention in the new All-Volunteer force. By 1978, the DOD family housing inventory had grown to over 350,000 units [Ref. 2:p. 35].

## G. RECENT ALTERNATIVES TO APPROPRIATED FUND HOUSING

In recent years, changes in Congressional and Executive department priorities have forced significant cutbacks in DOD spending. As a result, military construction, including navy family housing, has been greatly reduced. Through the early 1980's, the Navy experienced a general growth in the appropriated funds authorized for new family housing construction. This growth trend continued until 1988 when Congressional actions forced

reduction in the federal deficit, and consequently, a reduction in military construction appropriations (see Table I).

**Table I: APPROPRIATIONS AND AUTHORIZATIONS FOR THE 1980'S**

| FISCAL YEAR | APPROPRIATED AMOUNT ($000) | PERCENT CHANGE FROM PREVIOUS YEAR DOLLARS | NUMBER OF UNITS CONSTRUCTED |
|---|---|---|---|
| 1981 | 73,625 | N/A | N/A |
| 1982 | 59,990 | -18% | N/A |
| 1983 | 64,370 | + 7% | N/A |
| 1984 | 105,521 | +39% | N/A |
| 1985 | 99,627 | - 6% | N/A |
| 1986 | 98,858 | -.7% | 1,227 |
| 1987 | 120,812 | +22% | 1,468 |
| 1988 | 192,666 | +59% | 2,244 |
| 1989 | 186,866 | - 3% | 2,008 |
| 1990 | 129,773 | -31% | 952 |

From FY88 to FY90, navy family housing new construction appropriations have been reduced over 30%. A continued reduction in appropriated funds for new construction is anticipated as congressional and executive branch priorities focus on budget deficit reduction.

In efforts to maintain the growth and reduce the deficit of adequate family housing in lean years, the Navy has explored a number of alternatives to spending appropriated funds for housing construction. Specifically, these alternatives are Public/Private ventures that were first authorized by the 1984 Military Construction Authorization Act (Public Law 98-115).

Section 801 of Public Law 98-115 authorized DOD to lease newly constructed housing projects from private developers. Similar to the Wherry and Capehart programs of the 1950's, under the 801 program a

private contractor finances, builds, and maintains a housing project for a specific military installation. 801 projects can be constructed on or off base, and are initially leased by the Government for 20 years. Following the initial lease, the Government has the option of renewing the lease for an additional 20 years, or purchasing the land and/or buildings from the contractor at their fair market value. Presently, a total of 9,000 family housing units have been constructed, and another 10,500 authorized by the Section 801 program [Ref. 8].

A second alternative to spending appropriated funds for family housing was provided by Section 802 of the 1985 Military Construction Authorization. As in the Section 801 program, housing is authorized to be built and operated by private contractors, but the 802 program is different in that the Government does not lease the housing units, they are instead rented directly to eligible military families. Under this program the military is obligated to ensure a 97% occupancy rate for 25 years, the life of the rental guarantee. The Section 802 program has not been as popular as the 801 Build-to-Lease program, and to date only one project has been undertaken. It is located at the Marine Corps Air Station, Kaneohe, Hawaii. However, a total of 5,400 units have been authorized for construction by Congress [Ref. 8:p. 52].

Finally, a third alternative to using appropriated funds to acquire military family housing has been authorized by Title 10 U.S.C. Section 2667. The "Land Lease" program allows DOD to lease government owned land to private contractors who in turn are authorized to construct family housing or other commercial projects such as fast food restaurants or banks. Under the Section 2667 program, military families rent units from the contractor at rates set below or equal to the fair market value for that area. Title to the units remains with the lessee for the duration of the lease. The program is unique in that the Government can terminate the lease with the contractor whenever it's in the Government's best interest to do so. Upon expiration of the lease, the Government and the lessee can

negotiate to (1) renew the lease, (2) sell the facility to the Government, or (3) pass the title to the Government through abandonment or other agreement. The Section 2667 program has been used to produce only two military family housing projects, most notably "Thorson Village" at Fort Ord, California [Ref. 8:p. 56].

## III. DEVELOPMENT OF CIVILIAN ADEQUACY STANDARDS

### A. INTRODUCTION

As early as the 19th century, Americans in general were concerned with the poor quality of housing in which many people were living. The issue came to light primarily with the increasing immigrant population and the resulting growth of slums in the Northeastern part of the U.S. It was some time, however, before there was any strong political involvement or movement toward resolution of the problem. In fact, only after the situation was exacerbated by the 1930's Depression was the issue formally confronted in the form of the 1936 Democratic presidential platform which contained the goal of "decent, adequate housing at affordable prices for all Americans" [Ref. 9]. Later, during the post WWII period, public attention was drawn again toward overcrowding. Servicemen returning from the war and their families were faced with limited available housing and were forced to share accommodations with other families. Finally, Congress addressed the problem which now involved both civilian and military personnel with the enactment of the 1949 Housing Act which stated:

> The congress hereby declares that the general welfare and security of the nation and the health and living standards of its people require housing production and related community development sufficient to remedy the serious housing shortage, the elimination of substandard and other inadequate housing through the clearance of slums and blighted areas, and the realization as soon as feasible of the goal of a decent home and suitable living environment for every american family. [Ref. 10]

Decent and suitable living conditions, on the surface, sound like worthy goals, but neither the 1936 presidential platform nor the 1949 Housing Act defined these terms. Without a specific definition it is impossible to consistently measure the quality of housing and, therefore, it can never be determined if the goal has been met. After 40 years,

there still is not a single universally accepted definition of adequate housing. Even so, much work has been done toward this objective, both in the civilian community and within DOD (see Chapter IV). In the civilian sector the U.S. Bureau of the Census, the U.S. Department of Housing and Urban Development (HUD), and the Congressional Budget Office (CBO) helped to define adequate housing in terms of physical condition. At the same time, professional societies and associations urged by government officials developed minimum standards of structural adequacy stated in terms of method of construction and material used. Further, studies were undertaken to review the effects of available space and neighborhood conditions on housing adequacy.

To prevent confusion and allow for consistency, the following definitions are provided:

1. Room: Any room meeting requirements for sleeping, living, cooking, or dining purposes; excluding such enclosed spaces as closets, pantries, bath or toilet rooms, hallways, laundries, storage spaces, utility rooms, and other similar spaces.

2. Net Area: The space inside the exterior and party walls, excluding;

   (a) exterior and party walls
   (b) 1/2 the thickness of interior walls adjacent to excluded areas
   (c) utility and laundry rooms
   (d) washer and dryer closets
   (e) furnace and domestic water heater spaces
   (f) interior and exterior bulk storage
   (g) stair wells
   (h) landings
   (i) weather vestibules sheltering the main entry
   (j) unfinished attics and basements
   (k) patios, balconies and terraces
   (l) porch areas not considered rooms

## B. PHYSICAL CONDITIONS

The U.S. Bureau of the Census began collecting information on housing with the decennial census in 1940. Information was collected on occupancy characteristics (tenure, vacancy status, number of persons), structural characteristics (rooms, year built, condition of the unit), equipment and facilities (water supply, toilets, bathing facilities, heating equipment),

and financial characteristics (value, rent). A 1948 Congressional Joint Committee on Housing held special hearings on the state of housing and used the testimony in conjunction with census data to tentatively define a substandard condition in a residence as a "...non-farm unit...in need of major repair, together with all units in urban areas which lack private inside bath and toilets." [Ref. 11] While this definition lacked the detail and scope required in an acceptable standard, it did indicate the importance that physical attributes should play in the determination of adequacy.

During this same period, provisions made through uniform building and plumbing codes virtually assured that newly constructed housing would have hot and cold water, and flush toilets. [Ref. 9:p. 38] These legally enforceable codes limited the usefulness of the 1948 definition in guiding new construction as the lack of complete plumbing was no longer a major concern. It is important to note that while codes greatly improved the situation, they have not eliminated the problem. Codes are fairly easy to enforce during construction of housing, but violations that result from deterioration often go uncorrected. No studies were found to document the extent of the problem, however, deficiencies such as holes in the walls and lack of facilities were still being reported in recent surveys. With the controls over new construction and given that the median housing unit in 1987 was 25 years old [Ref. 12], one can assume that the defects are found primarily in the older units. Continued reporting of defects implies that, on the whole, little is being done to prevent or correct deficiencies, possibly due to a lack of code enforcement after completion of the construction phase.

The new measure of quality used in the 1950 census was simply restricted to the issue of a unit being "in need of major repairs," and enumerators classified housing as either "dilapidated" or "not dilapidated." The latter was further reduced into classifications of "sound" and "deteriorating" for the 1960 census. These classifications

were used until 1970, and even though they are quite extensively defined (see Table II), the final determination of the units quality still was based on observation by the enumerator. This subjectivity resulted in a lack of consistency in the identification of adequate housing.

In an attempt to eliminate inconsistencies and subjectivity found in the census, HUD and the Census Bureau created the Annual Housing Survey (AHS) which began in 1973.[2] This survey expanded the questioning of the decennial census and collected data on over 25 specific possible deficiencies relating to a dwelling's physical condition and operation of equipment. The AHS did not stop with the simple presence or absence of a system; Do you have complete plumbing? Do you have a heating system? Questions on the AHS went further to ask about the operational status of those systems; Has it broken down in the last year? If so, how often? For how long? Additionally, the survey was concerned with the structure itself specifically asking about leaky roofs; damp basements; holes in the walls, floors, and ceilings; broken plaster, and peeling paint. Such extensive and detailed information on structural flaws and system attributes was thought to be useful in measuring the quality of housing.

Researchers, though, could not find any single attribute or small group of attributes from the collected information that could be directly translated into a definition of adequate. It was necessary then, to develop a more complex system of definitions. Both HUD and CBO have established such systems and while the details of the different definitions vary substantially, due to the subjectivity of the analysts, the overall frameworks are the same. Attributes are grouped into categories such as plumbing, heating, and upkeep. For each category a criterion of adequacy is formulated, for example, criterion within the kitchen category require a dwelling to have a range, sink, and refrigerator. A unit is deemed inadequate if it fails to meet the

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[2]HUD used this survey until 1981 and again in 1983. In 1985 it was replaced with the biennial American Housing Survey (AHS).

## Table II: U.S. BUREAU OF CENSUS DEFINITIONS

### SOUND

A dwelling with no defects, or slight defects which are normally corrected during the course of regular maintenance.

Examples of **slight defects:**

Lack of paint; slight damage to porch or steps; small cracks in walls, plaster, or chimney; broken gutters or downspouts; slight wear on floors or door sills.

### DETERIORATION

A dwelling that needs more repairs than would be provided in the course of regular maintenance. It has one or more defects of an intermediate nature that must be corrected if the unit is to continue to provide safe and adequate shelter.

Examples of **intermediate defects:**

Shaky or unsafe porch or steps; holes, open cracks, or missing materials over a small area of the floors, walls, or door sills; broken or loose stair treads or missing balusters. Such defects are signs of neglect which lead to serious structural deterioration or damage if not corrected.

### DILAPIDATED

A dwelling that does not provide safe and adequate shelter. It has one or more critical defects; or has a combination of intermediate defects in sufficient number to require extensive repair or rebuilding; or is of inadequate original construction. Critical defects result from continued neglect or indicate serious damage to the structure.

Examples of **critical defects**

Holes, open cracks, or missing material over a large area of the floors, walls, or other parts of the structure; sagging floors, walls, or roof; damage by storm or fire. Inadequate original construction includes structures built of makeshift materials and inadequately converted cellars, sheds, or garages not originally intended as living quarters.

criterion in any category. Since most categories have more than one attribute and most criterion require more than one defect, it is possible for a unit to have several defects and still be considered adequate. HUD currently defines non-adequate housing on two levels, "inadequate" and "seriously inadequate" while CBO defines it simply as housing "needing rehabilitation." These definitions are provided in Tables III and IV respectively. It should be noted that while HUD and CBO definitions vary on which AHS variables should be included, analysis suggests that conclusions based on these measures do not differ significantly [Ref. 9:p. 41].

Even though HUD and CBO definitions provide a detailed and useful measure of the quality of a housing unit's physical condition, one limitation is noted. A unit is seen as inadequate if one or more specific deficiencies exist. These systems do not allow the occupant to trade-off desirable features against these flaws. For example, a unit may have functioning heating in all but one room, yet the entire unit is found to be inadequate. That room might be used simply for storage or may be completely closed-off without inconveniencing or overcrowding the family and, therefore, is still quite adequate. This kind of consumer decision making is not reflected in either HUD or CBO housing quality measures.

### C. STRUCTURAL ADEQUACY

HUD and CBO define adequacy in terms of the physical condition of existing housing, but quality must also be measured during original construction and later rehabilitation. This is done through uniform codes that contain provisions which require construction methods and materials used to meet certain standards, thus ensuring minimum levels of health and safety. Current building codes have been formulated over the years by professional committees primarily staffed with government building officials who receive technical support and recommendations from concerned architects and engineers. Increasingly, code provisions refer to other

## Table III: HUD DEFINITIONS OF ADEQUATE HOUSING

### Seriously Inadequate

A unit is seriously inadequate if it has any of these five problems:

Plumbing lacking hot or cold piped water or a flush toilet, or lacking both bathtub and shower, all inside the structure for the exclusive use of the unit.

Heating having three or more breakdowns of the heating equipment last winter, each lasting at least six hours.

Electric having no electricity, or having all the following three electrical problems: exposed wiring; a room with no working wall outlet; and three blown fuses or tripped circuit breakers in the last 90 days.

Upkeep having any five of these six maintenance problems: leaky roof; leaky basement; holes in floors; holes or open cracks in walls or ceilings; more than one square foot of peeling paint or plaster; or rats or mice in the last 90 days. If the unit has no basement, any four of the remaining five problems are enough to count it as seriously inadequate.

Hallways having these three problems in public areas: no working light fixtures; loose or missing steps; and loose or missing railings.

### Inadequate

A unit is inadequate if it has any of the following six problems:

Plumbing same as "seriously inadequate," or having only one toilet, which broke down three times, at least six hours each time, in the last six months.

Heating same as "seriously inadequate," or having unvented gas, oil, or kerosene as the main source of heat.

Electric same as "seriously inadequate."

Upkeep having any three of the six problems listed for "seriously inadequate," regardless of whether the unit has a basement.

Hallways having any two of the three problems listed for "seriously inadequate."

Kitchen lacking a sink, range, or refrigerator, all inside the unit for the exclusive use of the unit.

Table IV: CBO DEFINITION OF HOUSING NEEDING REHABILITATION

**Needing Rehabilitation**

A unit a classified as physically inadequate if it has at least one of the following conditions:

1. the absence of complete plumbing facilities.
2. the absence of complete kitchen facilities.

and/or if the unit has two or more of the following conditions:

3. three or more breakdowns of six or more hours each time in the heating system during last winter.
4. three or more times completely without water for six or more hours each time during the prior 90 days, with the problem inside the unit.
5. three or more times completely without flush toilet for six or more hours each time during the prior 90 days, with the problem inside the unit.
6. leaking roof.
7. open cracks or holes in interior walls or ceilings.
8. broken plaster or peeling paint over greater than one square foot of interior walls or ceilings.
9. unconcealed wiring.
10. the absence of any working lights in public hallways for multi-unit structures.
11. loose or no handrails in public hallways in multi-unit structures.
12. loose, broken, or missing steps in public hallways in multi-unit structures.

national standards developed by technical organizations such as the American Society for Testing and Materials (ASTM) whose standards are based on extensive testing [Ref. 13]. Compliance with all nationally accepted building code regulations is required for new construction and housing repairs in order for the structural integrity to be considered adequate.

Even though building codes are very technical in nature, they have evolved from a basic desire to prevent disaster. Early accounts tell of fires that originated in log chimneys imperfectly protected with layers of

mud. These fires led to laws forbidding such dangerous construction practices. Today, our building codes are developed in much the same manner; a danger which arises out of unregulated construction is followed by rules to prevent the situation from recurring. Codes can only be enforced if they are based on what is generally accepted as good construction and are reasonable, practical, and necessary. Building codes address issues of construction that experience has proved need regulation to protect human health and safety from the ignorant, careless, and unscrupulous. [Ref. 13:p. 3] The purpose of codes is to provide for the protection of life, limb, health, property, environment, and for the safety and welfare of the public [Ref. 14]. They are concerned with issues of structural integrity, and fire and environmental protection. Issues of habitability such as room size, sound proofing, and lighting are gaining attention but are addressed primarily as they relate to health and safety. Questions of an aesthetic nature are beyond the scope of these codes.

## D. ADEQUACY OF AVAILABLE SPACE

Adequacy of a dwelling goes beyond the structural and physical condition of a unit, it also deals with the issue of overcrowding. The problem of having too many people live in too small a space relates to both the number of rooms involved and the dimensions of those rooms. In 1940, before the height of the overcrowding problem, there were fewer than 1.5 rooms for every person in the United States [Ref. 15]. Unlike physical adequacy, no specific analysis has been performed to calculate the appropriate number of rooms per person required to define an acceptable level of adequacy. Instead, the standard of adequacy must be defined by trends and general feelingS of acceptability. The issue of crowding in the 1940's was seen by most people as needing improvement, and with the outcry of the time it is reasonable to state that having less than 1.5 rooms per person is inadequate. While the transition may not

have been smooth, by the late 1980's the problem of overcrowding appeared to have improved substantially; the post war problems of the late 1940's no longer existed, and the nation as a whole no longer felt that overcrowding was an issue needing intensive government involvement. According to the 1987 AHS over 65% of the occupied housing units in the civilian sector had .5 or less persons per room, compared to less than .5% that had 1.5 or more persons per room. With public opinion on issues of overcrowding gone for the most part and using trends identified with data collected by the AHS, an acceptable standard for adequate available space can reasonably be set at two rooms per person. This standard might be overstated somewhat in that the AHS gives no consideration to the homeless. If one were to assume that the nation's homeless were to share the existing stock of housing, the standard might be slightly reduced. But in evaluating the situation it is important not to confuse the issues of overcrowding and homelessness.

Adequate standards relating to the size of rooms, on the other hand, have been established more formally. These standards are detailed in building codes which, as discussed previously, are time tested and represent only minimum requirements. One code, by the Council of American Building Officials (CABO) requires that for one and two family dwellings:

1. every dwelling shall have at least one room of not less than 150 square feet (SF).
2. other habitable rooms shall not be less than 70 SF and must be at least 7 feet horizontally.
3. kitchens must be at least 50 SF.

In order for a housing unit to be considered to have adequate space, independent of the number of rooms per person, these provisions of minimum areas must be met or exceeded [Ref. 14:p. 9].

Trends in the construction of new housing from 1972 to 1987 show a significant increase in the average square footage. The weighted average growth for both single and multi-family units during this period was

nearly 20%. Using information from the 1987 AHS, private sector housing was analyzed to determine median size for various social groups as shown in Table V. Social groupings were based on age and education level of the head of the household such that the groups corresponded with military ranks. Following are the groups devised and their equivalent military rank: [Ref. 16]

1. High school graduate aged 18-28 is equivalent to military E1 to E6.
2. High school graduate aged 29-55, or college graduate aged 22-31 is equivalent to military E7 to O3.
3. College graduate aged 32-43 is equivalent to military O4 and O5.
4. College graduate or post graduate aged 44-53 is equivalent to military O6.
5. Post graduate aged 54-60 is equivalent to military O7.

**Table V: EQUIVALENT PRIVATE SECTOR HOUSING AREAS**

| NUMBER OF BEDROOMS | NET AREA in square feet E1-E6 | E7-03 | 04-05 | 06 | 07 and up |
|---|---|---|---|---|---|
| two | 774 | 860 | * | * | * |
| three | 1051 | 1238 | 1462 | * | * |
| four | 1445 | 1700 | 1913 | 1870 | 3118 |
| five | N/A | 2064 | * | * | * |

N/A - there is not enough input to be statistically meaningful
* - net areas were not calculated as military standards in these categories do not exist

The major fault with this two part measure of quality is that both parts have not been integrated. Consider a four member family residing in a unit that meets only the minimum standards. The dwelling, at two rooms per person, must have eight rooms. These rooms are assumed to be one kitchen of 50 SF, one large room of 150 SF, and six other habitable rooms of 70 SF each for a total living area of 620 SF. Such a unit is adequate by both standards. If the unit had been configured such that it had two

150 SF rooms, a kitchen of 100 SF, but only six rooms in total (1.5 rooms per person) it would not be considered adequate even though it had almost 10% more living space.

## E. NEIGHBORHOOD CONDITIONS

Neighborhood conditions and available local services are also important when determining the adequacy of a housing unit. Although this kind of information is collected through the AHS, the data is not reflected in any adequacy definitions or standards previously addressed, i.e. HUD, CBO, and building codes. From 1974 to 1981 AHS respondents were asked to rate their neighborhood according to six variables; crime, abandoned buildings, litter, odors, streets in need of repair, and satisfactory police protection. Assuming that each of these attributes represents one possible defect, the Harvard Joint Center for Housing Studies determined that an adequate neighborhood had one or no deficiencies, while a neighborhood with two or more deficiencies was inadequate. This subjective cut-off point was selected such that the number of units judged to be in an inadequate neighborhood was roughly equal to the number of structurally inadequate units based on 1974 AHS figures. Even this assignment is arbitrary in that not all housing units that are structurally inadequate are located in inadequate neighborhoods. Additionally, due to differing consumer preferences, respondents in the same neighborhood will not all report the same flaws. For example, the presence of abandoned buildings might be ignored by one person and might cause another to seek an alternative neighborhood. [Ref. 9:p. 45] To make matters worse, unlike Standard Metropolitan Statistical Areas used in the Census, neighborhoods in the AHS are not specifically identified by physical boundaries. Answers to AHS questions are based on the individual respondent's perceived neighborhood. A person who sees his neighborhood as just his block might ignore litter and abandoned buildings found a few

blocks away, while the person next door who has a wider perceived neighborhood might consider the litter and buildings as defects.

On the 1983 AHS, questions on neighborhood conditions were broken down into more detail with seven conditional factors (noise, streets in need of repairs, crime, litter, abandoned structures, industries, and odors). There were also questions on services provided such as police protection, recreational facilities, hospitals, transportation, and shopping. While there is no evidence of further analysis of this new data, it is reasonable to assume the same term of adequacy exists (zero or one defect constitutes adequate) for each category, neighborhood condition and services. The limitations of defining adequate neighborhoods remains, even with the additional information. It would be helpful in defining adequacy to look at all households' overall satisfaction with their neighborhood. For example, in 1987 almost 62% of those who reported having a neighborhood also reported zero defects. In order to define adequate it would be useful to correlate the defects reported by the others with location and financial status of the respondent.

## F. SUMMARY

Defining the adequacy of a housing unit is very complex and ultimately depends on individual preferences. If one could live in any house in any area, choices made would consider attributes such as conveniences to family, friends, and work; public transportation; availability of leisure activities, schools, and other public services; the look and design of the neighborhood; and the house itself. It is unlikely that anyone would choose to live in a housing unit that was not structurally sound, was in a state of disrepair, or did not provide enough space to prevent crowding. It is unlikely, that is, if the family were given an alternative. In 1987 almost 53% of all households reported an annual income of less than $25,000 [Ref. 12:p. 64]. With such limited incomes, many consumers do not have the resources needed to demand the level of housing they prefer.

Economically speaking, it is not in the investor's best interest to pay the cost for adequate housing when he is not likely to receive a favorable return on investment. The result is that improvements are not made on rental properties and low income owners cannot afford to make the improvements they desire. Government forces step in if for no other reason than to protect the health and safety of the public. With this involvement came surveys to help determine the extent of the problem and building codes to help eliminate the problem. Although the overcrowding and substandard housing issues have eased, the move was made due to government intervention and was not the result of market forces. Without continued surveillance and enforcement of standards, the stock of deteriorating and inadequate housing will continue to exist.

## IV. NAVY'S DEFINITION OF ADEQUATE

### A. INTRODUCTION

The objective of the Navy family housing program is to provide adequate affordable housing to all eligible service members and their families. Department of Defense (DOD) policy is to rely primarily on the civilian communities around military installations to provide housing. When adequate housing is not available in the civilian market, however, construction of on-base housing may be justified. Whether on-base or not, housing occupied by military members and their families should be, according to DOD policy, adequate. Although these requirements are based in part on standards developed in the civilian sector, the Navy's definition of adequate is more comprehensive than, and in many ways exceeds the civilian standards discussed in Chapter III. The military's view is toward overall adequacy and thus there is joint consideration given to many different aspects of housing such as physical and structural condition, maintenance, location, and neighborhood. Housing that meets the requirements in one area may fail to be designated adequate due to deficiencies in other areas. It is expected though, that determinations will be based on good judgement in interpreting the intent of the standards and a single defect, unless, critical, is not considered cause for declaring a unit inadequate [Ref. 17].

### B. PHYSICAL CONDITION

Navy standards for adequacy relating to a dwelling's physical condition are fundamentally similar to those used in the civilian community by the U.S. Department of Housing and Development (HUD) and the Congressional Budget Office (CBO). Both private and public standards deal with the existence and level of performance or maintenance of certain attributes. However, while HUD and CBO use systems that allow multiple

defects even in an adequate unit, Navy standards are much more restrictive.

Existence of a system or piece of equipment is a prerequisite to establishing its performance record and level of maintenance. Adequacy, according to HUD and CBO, initially depends on a dwelling having basic amenities; complete plumbing, heating, and electrical systems, and a complete kitchen (sink, range, and refrigerator). Navy standards do not stop there, they also require a completely adequate living unit to include: [Ref. 18]

1. air conditioning, under certain circumstances
2. bulk storage
3. dishwasher
4. kitchen exhaust fan to the exterior
5. patio or balcony, privacy screening, paving, and landscaping
6. smoke detectors
7. telephone outlets and wiring
8. utility connections and dryer vent for occupant provided washer, dryer, and upright freezer
9. window blinds, shades, or drapes
10. window screens

All of these items must be maintained such that they are free of defects which would affect safety, appearance, or habitability or would prevent and electrical, mechanical, plumbing, or structural system from functioning in accordance with design. Specific Department of the Navy standards of maintenance address structural interiors and exteriors including such attributes as watertight roofing, smoothly operating windows, and tread on stairways. Attributes relating to electrical systems; plumbing systems; heating, ventilation, and air conditioning systems; other appliances and equipment; painting; and grounds maintenance are also addressed in these standards. Appendix A provides a detailed

description of the level of maintenance that must be sustained as outlined in the Navy family housing manual. These standards are achieved primarily through a routine modernization and repair inspection program (MODRIP). [Ref. 19]

As part of the MODRIP program a unit of family housing is inspected five different times throughout an occupancy cycle. Each of these inspections is described in the paragraphs below. [Ref. 20]

1. Check-in Inspection: Both management and the new tenant review the dwelling for state of repair, cleanliness, and operational status of the equipment. The tenant is informed of any maintenance or repair that is scheduled and he is advised of he responsibilities as they relate to upkeep of the property.

2. Intent to Vacate Inspection: 30 Days prior to the tenant leaving, management performs a pre-termination inspection. At this time the housing representative makes a list of needed repairs and informs the tenant of those repairs for which he is responsible.

3. Termination Inspection: This inspection is done prior to releasing the tenant. Its purpose is to ensure that occupier damage previously noted has been corrected.

4. Change of Occupancy Inspection: When the unit is vacant the inspector makes a detailed list of all maintenance and repair that is required to meet the Navy's adequacy standards for maintenance.

5. Make Ready Inspection: Prior to allowing another tenant to occupy the unit this inspection is performed to ensure that all required repairs have been made or have been scheduled.

Defects noted incident to these inspections, as well as those noted by the tenant during his occupancy, are corrected in many different ways. Whether accomplished by station or contract forces, the work is performed as emergency service, routine maintenance, or a special project. Sometimes an area of housing will experience a recurring problem, i.e. several units in the same area require the same repair due to a piece of equipment that is either defective or is nearing the end of its useful life. This situation will result in a non-routine inspection to determine the need for a special repair project which will prevent further failures and gain economies of scale in the cost of repairs.

## C. STRUCTURAL ADEQUACY

Attributes of structural adequacy are addressed in the initial construction and later rehabilitation of family housing. Here Navy standards rely heavily on private sector standards. Construction specifications require that unless otherwise directed, both material used and method of construction must comply with referenced codes and publications such as American National Standards Institute, Inc. (ANSI); American Society for Testing and Materials (ASTM); Uniform Codes for Plumbing, Building, Electric, and Mechanical (UPC, UBC, UEC, UMC); and National Fire Protection Association (NFPA) codes. Often, compliance with Federal and Military handbooks, publications, and specifications is also required in the construction of family housing. These additional requirements exceed or improve on those minimum levels of health and safety outlined by civilian specifications. For example, MIL-HDBK-1035 requires that: [Ref. 21]

> Structural design (materials and construction) shall comply with the Uniform Building Code, except for structures which qualify as "Manufactured Homes" under the Federal Manufactured Housing Construction and Safety Standards Act, or except as modified herein. Design shall meet the following criteria and the minimum load standards presented...
>
> a) Walls, when used or required for lateral resistance to wind or earthquake, shall be considered bearing walls and shall have foundations...
>
> c) Nonstructural steel (handrails, etc) embedded in concrete shall be galvanized or painted wrought iron...

## D. ADEQUACY OF AVAILABLE SPACE

Space allocation requirements for the Department of the Navy (DON) are far more extensive than those in the private sector. Private standards deal with the size of specific rooms and the number of rooms per person, but they do not address overall size (net area) or configuration of the dwelling. The effort to provide military members and their families with adequate space can be traced back to the concern of overcrowding in the

early 1940's. Both minimum and maximum net areas were established for military family housing around this time. Minimum areas have remained relatively unchanged over the years. Current figures shown in Table VI depend on the service members pay grade and the number of bedrooms within the unit [Ref. 17:p. 5].

Table VI: CURRENT MINIMUM NET FLOOR AREA

| NUMBER OF BEDROOMS | AREA in square feet ENLISTED | JUNIOR OFFICERS | 04 AND UP |
|---|---|---|---|
| one | 550 | 700 | --- |
| two | 750 | 865 | 950 |
| three | 960 | 1035 | 1120 |
| four or more | 1190 | 1185 | 1225 |

Maximum allowable net areas were mandated with the passage of Public Law 626, Construction Authorization, in 1948. Unlike the minimum values, authorization for maximum areas has changed in both form and substance. As shown in Table VII, original maximums were based solely on the service member's pay grade and gave no consideration to the number of bedrooms [Ref. 22]. In the early 1970's the Navy recommended a change in policy that would modify existing maximum space allowances such that they might

Table VII: MAXIMUM AUTHORIZED NET FLOOR AREA - 1948

| PAY GRADE | NET AREA in square feet |
|---|---|
| enlisted | 1080 |
| W1 - 03 | 1250 |
| 04 - 05 | 1400 |
| 06 | 1670 |
| 07 - 010 | 2100 |

be commensurate with those enjoyed by a service member's civilian counterpart. As of 29 November 1973 Public Law 93-166 Section 2684, Construction of Family Quarters, Limitations on Space provided increased maximum space allowances. Table VIII shows the new and currently used net floor areas which are dependant on both the number of bedrooms and the member's pay grade. [Ref. 23] The law, which has not been amended since, also allows for two specific variances from stated maximums:

**Table VIII: CURRENT MAXIMUM NET FLOOR AREAS**

| NUMBER OF BEDROOMS | NET AREA in square feet E1-E6 | E7-03 | 04-05 | 06 | 07 AND UP |
|---|---|---|---|---|---|
| two | 950 | 950 | --- | --- | --- |
| three | 1200 | 1350 | 1400 | --- | --- |
| four | 1350 | 1450 | 1550 | 1700 | 2100 |
| five | 1550 | 1550 | --- | --- | --- |

1. A Commanding Officer's quarters may be increased by 10%.
2. If determined by the Secretary of Defense that it is in the governments best interest, maximums may be increased by 5% to permit the award of a satisfactory turnkey[3] project.

Net area allowances are only the beginning of the Navy's space requirements. The DOD Military Handbook on family housing specifies minimum dimensions and areas for various rooms or areas such as dining area, living area, and bedrooms (see Table IX). Additionally, there are provisions made for room configuration: [Ref. 21:p. 34]

> ...Provide a separate family room, adjacent to and contiguous with the kitchen, for all three-, four-, and five-bedroom units...Bedrooms shall be designed to accommodate king size beds in the master bedrooms and twin beds in other bedrooms. Window, door, and closet placement should enhance furnishability. Each bedroom shall be accessible without passing through another bedroom...

[3]Turnkey is the name given to a project that is take from conception to acceptance by the same firm, i.e. they do design and construction.

**Table IX: MINIMUM DIMENSIONS AND AREAS**

| | |
|---|---|
| Kitchen dimension | 4 ft in front of cabinets and/or between cabinets |
| Washer/dryer space | 3 ft D x 6 ft W |
| Freezer space | 2 ft D x 3 ft W x 6 ft H |
| Refrigerator space | 2 ft D x 3 ft W x 6 ft H |
| Eat-in-kitchen space | 8 ft-6 in (face of cabinets to wall) |
| Family room | 9 ft-6 in |
| Dining area: | |
| 2 and 3 BR units | 9 ft-6 in |
| 4 and 5 BR units | 10 ft-6 in |
| Flag dining area | 12 ft |
| Living area | 11 ft-8 in / 150 SF |
| Carports/garages | 12 ft x 20 ft x 7 ft-6 in H |
| Balconies (if provided) | 6 ft / 72 SF |
| Patio | 8 ft / 120 SF |
| Bedrooms: | |
| master bedroom | 11 ft-8 in / 150 SF |
| second bedroom | 10 ft / 120 SF |
| all others | 9 ft-6 in |
| Bathrooms: | |
| half | 3 ft |

Configuration of the unit must also provide space for the appropriate number of bathrooms as required by DOD and shown in Table X [Ref. 18:p. 13-7].

Navy policy has also dealt with the issue of overcrowding in another very specific manner. There is no continuum along which the number of rooms per person is measured as is done in the civilian sector. Overcrowding of a dwelling is based on the number of bedrooms available in relation to the number and sex of children in the family. Generally speaking, no more than two dependents should share a bedroom, but for a

Table X: NUMBER OF BATHROOMS REQUIRED

| LIVING UNIT SIZE or DESIGNATION | NUMBER OF BATHROOMS ONE-STORY | TWO STORY |
|---|---|---|
| two bedrooms | 1 full | 1 1/2 |
| three or more bedrooms | 2 full | 2 1/2 |
| 06 (CO), 07 (CO) or above | 3 full | 3 1/2 |

Note that a half bathroom is equivalent to a powder room with a toilet and a sink.

unit to be considered adequate by the Navy the following four conditions must be met: [Ref. 19:p. 5-4]

1. No child should share a bedroom with a parent.
2. There should be no more than two children per bedroom.
3. No child aged six years or older should share a bedroom with another child of the opposite sex.
4. Dependents aged ten years and older (excluding spouse) is entitled to a separate bedroom.

Overcrowding can be taken beyond the walls of a single residence into the neighborhood. There, the density of housing units also plays a role in the consideration of adequacy. DOD currently has defined three levels of density as:

1. Low density - when existing government land is readily available for residential use.
2. Medium density - when government land is in short supply, private sector land can be purchased for reasonable prices or local land use practice dictates.
3. High density - when government land is in extremely short supply or unavailable, land purchase is costly, the surrounding zoning is urban, or local land use practice dictates.

Guidelines have been established for the number of dwelling units per acre, dwelling unit type, and the maximum number of units per building

that can be constructed in a family housing community. These are shown in Tables XI, XII, and XIII respectively [Ref. 21:p. 21]. The number and type of unit constructed depends on the level of density that is appropriate to the site.

**Table XI: DWELLING UNITS PER ACRE BY DENSITY**

| RANK | LOW | MEDIUM | HIGH |
|---|---|---|---|
| E6 and below | 4-7 | 8-10 | 11-15 |
| E7 - O3 | 3-5 | 6-9 | 10-12 |
| O4 - O5 | 2.5-3 | 4-5 | 6-9 |
| O6 | 2 | 3 | 4-6 |
| CO/Flag | 1 | 2 | 3-4 |

**Table XII: DWELLING UNIT TYPE BY SITE DENSITY**

| CONFIGURATION | LOW | MEDIUM | HIGH |
|---|---|---|---|
| 2 bedroom E1-O3 | detached or duplex | 1-2 story apartment, flat, or townhouse | 2-3 story apartment flat, or townhouse |
| 3-5 bedroom E1-O3 | detached or duplex | 1-2 story apartment, flat, or townhouse | 1-2 story apartment flat, or townhouse |
| 3-4 bedroom O4-O5 | detached or duplex | 1-2 story duplex, or townhouse | 2-3 story duplex or townhouse |
| 4 bedroom O6-O9 | detached | detached | detached |

## E. NEIGHBORHOOD

Navy standards recognize the fact that in addition to the density of a neighborhood, its location and the available recreational facilities play an important role in determining the adequacy of housing, especially from the residences point of view. Housing located more than one hours

Table XIII: MAXIMUM UNITS PER BUILDING BY GRADE

| TYPE | E6 AND BELOW | E7-03 | O4 AND ABOVE |
|---|---|---|---|
| apartment/flat | 12 | 8 | ---- |
| townhouse | 8 | 6 | 4 |
| duplex | 2 | 2 | 2 |

driving, during rush hour, or more than 30 miles from the service member's office is considered inadequate. This distance may be decreased when dictated by the commands required response time. However, because Navy family housing is generally located on bases where the personnel work, this standard may be inconsequential except when evaluating the adequacy of housing in the private sector.

DOD policy further recommends that no unit should be in an unacceptable proximity to firing ranges, ammunition storage areas, major aircraft runways, troop areas, sewage disposal facilities, dumps, industrial facilities, or other sources of objectionable noise, odors, and health and safety hazards to residents. Runways, troop areas, ammunition storage, etc. are characteristic of military installations, and family housing is generally on such a station. Therefore, only when unacceptable proximity results in persistent annoyance or hazard, will this fact be used to justify the housing as inadequate. [Ref. 17]

The recreational facilities that are required depends on the number of units in the community. At a minimum, the facilities outlined in Table XIV must be provided. [Ref. 21:p. 22] Another primary consideration in the adequacy of family housing is the existence of local schools. Construction of DOD schools is sometimes authorized when the local school system is not sufficient to handle the children from military families.

## F. SUMMARY

Adequacy standards for navy family housing are quite comprehensive, and far exceed civilian standards as a whole. There are four primary

**Table XIV: RECREATIONAL FACILITIES REQUIRED**

Tot lots - one for every 30 units

Basketball court - one full court four every 50 units

Handball courts - one for every 50 units

Recreational field - one five acre parcel for every 100 units (may be omitted at high density sites)

Recreational vehicle storage - (where required and prohibited at high density sites) one 10' x 20' space for every 20 units

reasons for this; (1) DON standards are founded on civilian standards, (2) DON integrates the different attributes, (3) DON has better enforcement of requirements, and (4) the income distribution for military families differs from that of civilian families. OMB Circular A-119, Federal Participation in the Development and Use of Voluntary Standards, encourages Federal Agencies to use private standards when possible [Ref. 15:p. 211]. In fulfillment of this, DON standards for physical condition and structural integrity build on civilian sector minimums. This is evident in the Navy's reliance on nationally accepted building codes etc. when specifying construction requirements for navy housing. Navy standards are extended with the inclusion of requirements for additional systems and equipment. For example, requiring smoke detectors in housing units is generally believed to be useful in preserving health and safety, yet this requirement has not been put into place in the civilian sector. Additionally, navy housing is required to be wired for telephone lines. While most people in the community have telephones, they do not relate to health and safety issues and are by no means guaranteed. Having access to telephones in navy housing parallels issues of some space requirements and provision of recreational facilities. These attributes are not needed to provide minimal living conditions (not slums or blighted areas), but they

are provided because they are in line with the objective of the zero draft, all-volunteer force concept.

Secondly, DON standards give consideration to and integrate the various attributes. The Navy acknowledges that the adequacy of family housing cannot be based solely on one issue, unless of course that problem is so bad as to overshadow everything else. DON's definition of adequate housing, therefore, has many parts that are viewed as a whole. Civilian definitions, on the other hand, address these issues (size, condition, neighborhood) individually, and ignore their interrelationships.

Thirdly, DON has regular scheduled inspection and maintenance plans. In the civilian community, once a unit is constructed, little is done to enforce continued repair and upkeep needed as a result of deterioration and general use. Households in government quarters, however, are held responsible for certain aspects of repair and have ready access to support services that provide other needed maintenance and repair.

Finally, many civilian standards have been established by trends which must consider both high and low income households. Based on information collected in the 1987 AHS, the median household income was less than $25,000 per year, with almost 8% reporting annual incomes of less than $5,000. Military pay scales, however, are well established and the income distribution is far less variable than that found in the civilian community. Using published tables, the median military income for 1987 can be estimated at around $20,500 per year. This figure does not include incentive pay such as sea pay received by most sailors. Also, AHS reports household income not just head of the household income. As many military members have working spouses the estimate for annual income would have to be further increased. It is easy to see that the navy personnel have a higher median income than the civilian sector, and as expenditure on housing increases with income, it is understandable that higher standards should be expected in the military.

Civilian standards were found to exceed Navy standards only in the case of net area, and then only some of the time. Based on the study of equivalent groupings discussed in Chapter III, four and five bedroom military houses were found to be between 10% and 35% smaller than private sector houses. Also, General and Flag Officer Quarters were over 1,000 SF smaller than houses of civilian equivalents. Only two and three bedroom enlisted houses tended to be larger than equivalent private sector houses. [Ref. 16:p. 27] This can been seen easily when both military and civilian data are presented together as in Table XV. This table lists the military maximum net areas, the equivalent civilian net areas, and the percent difference between the two.

**Table XV: MILITARY VERSUS PRIVATE SECTOR HOUSING**

| PAYGRADE | NUMBER OF BEDROOMS | MILITARY MAXIMUM | PRIVATE SECTOR | PERCENTAGE DIFFERENCE |
|---|---|---|---|---|
| O7 and above | 4 | 2100 | 3118 | +48% |
| O6 | 4 | 1700 | 1870 | +10% |
| O4-O5 | 4 | 1500 | 1913 | +23% |
| | 3 | 1400 | 1462 | + 4% |
| E7-O3 | 5 | 1550 | 2064 | +33% |
| | 4 | 1450 | 1700 | +17% |
| | 3 | 1350 | 1238 | - 8% |
| | 2 | 950 | 860 | - 9% |
| E1-E6 | 5 | 1550 | N/A | -- |
| | 4 | 1350 | 1445 | + 7% |
| | 3 | 1200 | 1051 | -12% |
| | 2 | 950 | 774 | -19% |

## V. THE VARIABLE HOUSING ALLOWANCE PROGRAM

### A. INTRODUCTION

The DOD Variable Housing Allowance (VHA) is a supplement to the Basic Allowance for Quarters (BAQ) paid to military service members living in areas of high cost civilian housing. VHA is part of the Regular Military Compensation (RMC) which also includes Basic Pay and Basic Allowance for Subsistence (BAS). Legislation for the VHA program was passed in 1980 as a result of an increasing disparity in housing costs experienced by service members in various locations throughout the U.S. [Ref. 24].

Prior to the Variable Housing Allowance, members received a Basic Allowance for Quarters. BAQ was originally authorized in 1949 as part of the Career Compensation Act, Public Law 81-351, which replaced the "rental allowance" housing compensation system in place at the time. The Career Compensation Act initially established BAQ rates for each grade at levels estimated by the Advisory Commission on Service Pay, known as the "Hook Commission." Maximum monthly rate estimates were set such that 75% of the civilians in comparable income groupings could reasonably expect to find adequate housing. Because BAQ rates were related to income groupings and housing costs, and since military income varied with rank, BAQ rates were graduated by paygrade, and further differentiated by dependency status. [Ref. 25]

The Basic Allowance for Quarters, however, never varied by geographic location. As a result, housing allowances for service people in certain high cost areas of the country eventually became insufficient to provide adequate housing, and many families suffered inequities in their standard of living compared to their peers stationed in lower cost areas. Because the Services were unable to ensure that all members spent equal time in low and high cost areas, it was viewed that many members would endure unfair financial burdens. For example, a person in San Francisco,

California was forced to pay rents higher than the amount of their BAQ while someone stationed in Pensacola, Florida found suitable housing available for less than the amount of their BAQ. The problem was exacerbated in the Navy by the policy that enlisted members, and to some degree officers, would become either "west coast" or "east coast" sailors. This meant that a sailor could feasibly spend his entire enlistment, or most of his career, in a high cost area like San Francisco. The concern of the military departments and Congress was that the inequities caused by high cost areas would adversely affect retention.

In 1975, the Naval Facilities Engineering Command conducted a survey to determine the housing costs of personnel living in the civilian community at 118 naval installations in the continental United States. The survey showed that navy personnel on the average were spending an amount equal to 149% of their BAQ for housing. For example, an Ensign (O1) living in the San Diego area received $275 per month BAQ, but on average was paying $410 per month rent. The survey also showed that members were spending on average, 25% of their total compensation (RMC) for housing. Given that at this time 70% of all Navy families received BAQ in lieu of government quarters, the net effect was that the few families fortunate enough to secure government quarters were made better off than most of their peers who, without choice, were forced to pay significant sums out of their pockets for community housing.

In high cost of living areas overseas, a type of VHA has been provided to service members since as early as 1943. Called the Overseas Station Housing Allowance (OHA), members in each paygrade receive additional compensation which equals the difference between their BAQ and the local cost of community housing for which they are authorized. The enactment was classified a "Travel and Transportation Allowance" and full reimbursement of housing costs is made to service members. Unlike BAQ and other allowances, OHA is prescribed in the Joint Federal Travel Regulations. [Ref. 25:p. 74]

As the inability of BAQ allowances to meet rising housing costs in many areas continued into the late 1970's, the military services began developing proposals for a Variable Housing Allowance. A joint services study group was formed to analyze the existing policies, processes, and procedures for setting the allowances with the intent to "propose an equitable housing allowance system for all personnel" [Ref. 26]. Then, acting on the initiative of the military departments, the Senate Armed Services Committee (SASC) took action in 1978 by sponsoring an investigation into the adequacy of housing allowances for military personnel. The SASC investigation findings prompted congressional approval of the first DOD Variable Housing Allowance bill on 8 September 1980 by Public Law 96-343. The new VHA was designated to be added to the Regular Military Compensation of all eligible members. The intent was to solve the existing inequities in housing expenses by subsidizing expenses in specific high cost areas to make compensation roughly the same for all military personnel.

## B. THE INITIAL VHA PROGRAM

When the VHA program was established, it initially linked VHA to BAQ. The monthly VHA was defined by Sections (B) and (C) of Public Law 96-343 as:

> (B) The monthly amount of variable housing allowance under this paragraph for any member is the difference between (i) the average monthly cost of housing in that area for members of the uniformed services serving in the same paygrade as that member and 115% of the amount of the basic allowance for quarters to which that member is entitled.
>
> (C) For purposes of this paragraph, an area shall be considered to be a high cost area with respect to a member of a uniformed service whenever the average monthly cost of housing in that area for members serving in the same paygrade as that member exceeds 115% of the amount of Basic Allowance for Quarters of that member.

For DOD to implement the new VHA allowance, it first had to make a clear definition of two important aspects of the law. The first was that geographic areas had to be defined for the purposes of determining average

housing costs. What DOD did was create Military Housing Areas (MHA's) by consolidating all zip code areas within an acceptable commuting distance (20 miles or one hour in rush hour traffic) of a military installation. When the commuting distance of two or more installations overlapped, the two MHA's were combined to create one, larger MHA. Secondly, DOD had to define an "average monthly housing cost." DOD interpreted this to mean rent plus utilities and maintenance. Essentially, a mean housing cost for an MHA is calculated based on observations of rent, utility, and maintenance costs incurred by military families who rent homes in the private market.

Home ownership costs were intentionally excluded from the housing cost data base used in the VHA program. DOD felt home owners paid less than renters in the long run due to the appreciation in the market value of homes and the savings in income tax payments due to interest and tax deductibility over the period of ownership. As a result, it was seen that military members in the short run might be willing to pay more in monthly mortgages than non-homeowners would pay in rent, thus creating inflation in the calculated average housing cost for an area [Ref. 27].

From the beginning, the program costs of providing VHA to service members far exceeded the estimates of the military and the expectations of legislators. In FY81, the first year of the VHA program, costs totaled $652.1 million. By 1983, due to increases in nationwide housing costs, program costs had risen 40% to $962.5 million. In order to control the quickly escalating costs, Congress made a number of significant changes to the program until, in 1985, the program was revised to its current form. [Ref. 26:p. 2-7]

The first change came in FY83 when congress attempted to restrain some program costs by directing the Services to compute VHA rates as if BAQ had increased 8% rather than the 4% authorized for that year. This action had the net effect of increasing the average amount of housing costs expected

to be absorbed by members from 15% to 19.4% of BAQ. This effect is more easily illustrated in an example.

Using the formula **VHA = LMHC - 115% BAQ**, a LT/03 receiving $325 per month BAQ in a geographic area with a $500 local median housing cost (LMHC) would receive VHA = 500 - 115% (325), or $125. His BAQ + VHA would then be $450 per month and his out of pocket expenses $50, or 15% of his BAQ. For the following year (FY83) congress mandated VHA to be calculated as if BAQ had increased 8% rather than the actual 4%. From Table XVI, row 2, it can be seen that this would result in an out of pocket expense increasing to 19% rather than the 15% if VHA had been calculated using the actual 4% increase in BAQ (row 3). [Ref. 28]

**Table XVI: VHA EXAMPLE**

| | | LMHC | BAQ | VHA=LMHC-1.15(BAQ) | Out of Pocket |
|---|---|---|---|---|---|
| | FY82 | 500 | 325 | 500-1.15(325=125 | 50/325 = 15% |
| 8% increase assumed | FY83 | 520 | 338 | 520-1.15(351*)=116 | 66/338 = 19.4% |
| 4% increase actual | FY83 | 520 | 338 | 520-1.15(338)=131 | 51/338 = 15% |

Note: BAQ* is the BAQ with an assumed 8% increase used only in the VHA rate calculation as by directed Congress.

A second change came in FY84 when the congress (1) froze local VHA rates at their FY83 levels, (2) eliminated VHA for reservists ordered to active duty for periods less than 140 days, and (3) placed a monthly ceiling on total housing allowances (BAQ & VHA) of $800 per month for members with dependents, and $600 for members without dependents. The result of these changes is that VHA costs decreased about $56.5 million in FY84, compared to the FY83 budgeted amount. This decrease was realized despite an overall increase of approximately 13,000 military personnel. Table XVII illustrates total VHA costs from 1981 through 1987.

Table XVII: TOTAL VHA COSTS

| FISCAL YEAR | TOTAL PERSONNEL | COST ($000) |
|---|---|---|
| 1981 | 702,893 | 615,920 |
| 1982 | 766,486 | 732,721 |
| 1983 | 811,484 | 880,999 |
| 1984 | 824,429 | 824,595 |
| 1985 | 832,948 | 952,140 |
| 1986 | 808,550 | 1,031,162 |
| 1987 est. | 800,949 | 1,036,352 |

In a final attempt to control rising program costs, in FY85 Congress permanently revised the method of determining VHA rates. By Public Law 98-525, paragraph 403, section C, the VHA was redefined as:

> ...the difference between (A) the median monthly cost of housing in that area for members of the Uniformed Services serving in the same paygrade as that member, and (B) 80% of the median monthly cost of housing in the United States for members of the Uniformed Services serving in the same pay grade as that member.

In short, the new rate determination equation became:

$$VHA = LMHC - .8(NMHC).$$

The differences between this new equation and the old equation (VHA = LMHC - 115% BAQ) are significant when considering each equation's ability to affect individual VHA rates. With the old equation, VHA rates were tied to NMHC through BAQ rates. BAQ was set at 65% of the NMHC for each paygrade and VHA, by law, was calculated using 115% of BAQ. Although the law was amended to allow this 115% to be adjusted up or down, it never was. Thus, as NMHC increased dramatically in the 1980's, VHA rates, which were tied to that cost, increased in a like manner.

With the new equation, legislators and OSD administrators no longer saw VHA tied to BAQ. With the new rate determination process, the .8

factor from VHA = LMHC - .8(NMHC) was seen as a starting point for determining individual VHA rates. Despite the size of increases in NMHC, using the new equation administrators could easily "tailor" rates by manipulating the factor. The new equation apparently gave administrators an ability to control VHA costs that they felt they didn't have with the old equation.

## C. THE CURRENT VHA RATE PRODUCTION PROCESS

The current VHA program is managed by the Per Diem, Travel and Transportation Committee (PDC) of the Office of the Secretary of Defense. PDC's specific responsibilities with respect to VHA include performing the analysis necessary to produce the VHA rates used by the services' finance centers to compute VHA allowances. To aid in the execution and management of the VHA program, PDC relies on several outside agencies. The first is a private management consultant, American Management Systems (AMS) which provides technical support to the program. Secondly, PDC uses a "survey contractor" to develop and conduct the biennial survey which is needed to collect housing cost information from military members and calculate VHA rates. Additionally, the Defense Manpower Data Center (DMDC), located in Monterey, California, is used to provide computer program development and maintenance, preparation of reports, preparation of data extracts for ad hoc analysis, and system documentation. DMDC also provides survey support services by coordinating all aspects of the working relationship between the PDC staff and the VHA survey contractor [Ref. 29].

The development of VHA rates has been divided into a ten step, two Phase process by the Per Diem Committee. This process will be presented in detail to provide an overall picture of the VHA program and to lay the foundation for the analysis conducted in Chapter V. A graphic illustration of the rate production process is presented in Figure 1.

### 1. Phase I: Determine Median Housing Costs

The first step in Phase one of the VHA rate production process is to determine the eligible population to survey. To do this, PDC and DMDC first obtain pertinent population data on military members from each of the Services' finance centers on what are known as "JUMPS" tapes. PDC

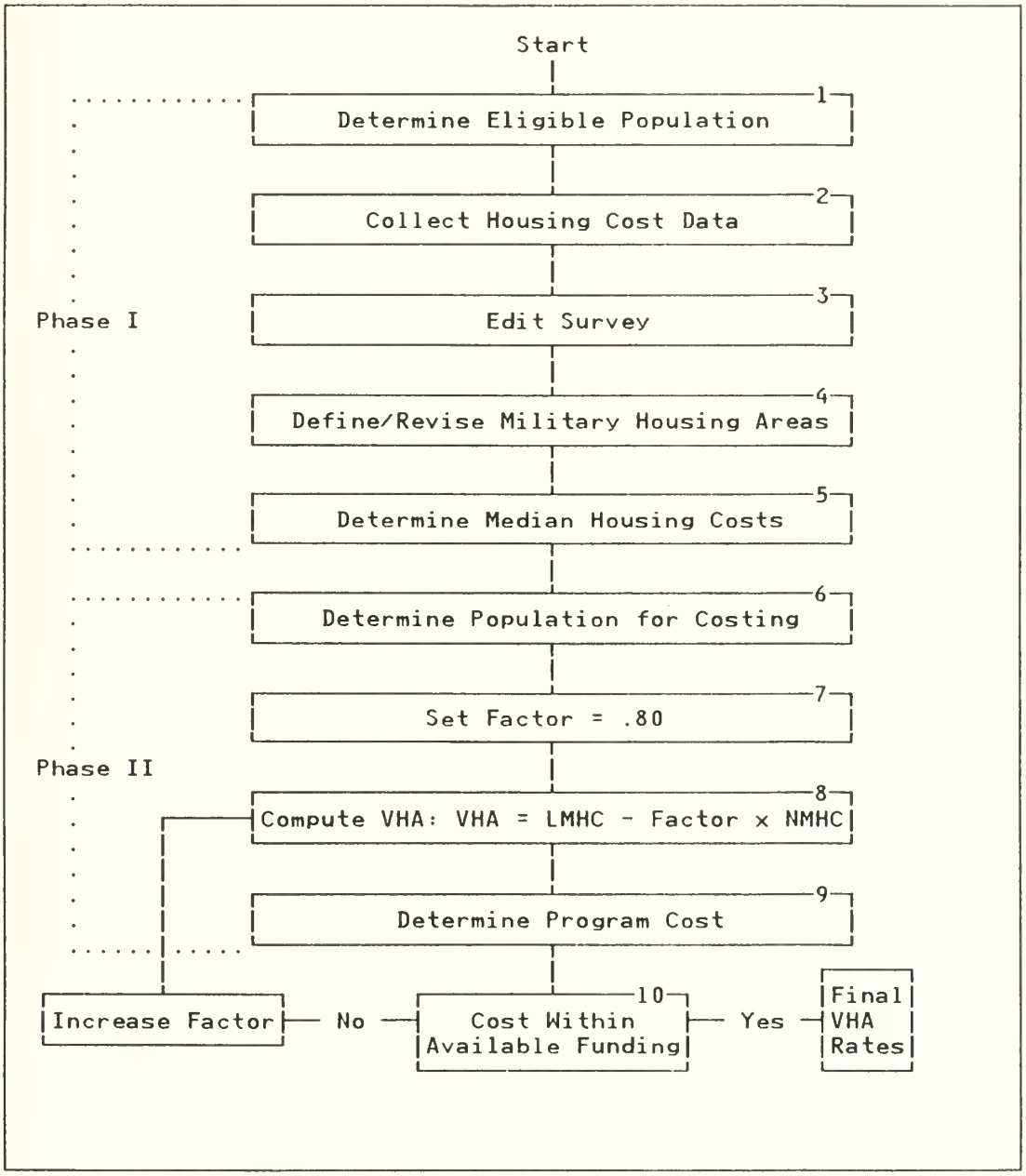


**Figure 1: VHA Rate Production Process**

and DMDC then edit these tapes to remove any duplicate records, records with bad zip codes, and the records of any ineligible members [Ref. 26:p. 2-8]. From the edited records, a survey size is determined and samples are selected. Historically, a sample size of 400,000 out of approximately 900,000 eligible members DOD wide has been selected for survey. The method of sample determination has typically been random, stratified proportionally by paygrade and dependency status.

The second step in Phase I involves the collection of housing cost data from VHA recipients. Essentially, this is the administration of the VHA survey. To conduct the survey, PDC contracts a civilian consultant. Population data from the finance center JUMPS tapes is provided to the contractor who develops and distributes a questionnaire by mail to selected participants. The completed survey is returned to the contractor via the mail. To ensure an acceptable response rate to the survey, several follow-up measures are used by the contractor. First, up to two personalized follow-up letters may be sent to members who fail to return completed surveys. Additionally, each command is provided with a roster of local survey participants. This allows station commanders to assert additional pressure to get delinquent participants to respond. Finally, for service members having difficulty completing the survey, toll free and autovon "hotline" numbers are provided for assistance. The survey contractor has typically received responses from 78% of the sample population. Of these responses, an average of 98% have been usable.

The content and structure of the VHA survey is essential to the analysis of the VHA program that will be conducted in Chapter VI of this thesis. However, it would be too lengthy to include in the brief description of the rate production process presented here. A complete examination of the VHA survey will be presented in Chapter VI.

The next step in the rate production process requires editing of the data collected in the VHA survey. Completed surveys are returned to the contractor who first records the data onto computer tapes. Aided by

DMDC, the Per Diem Committee performs the edits with the intent to obtain a data base for rate determination that is as accurate as possible. Editing includes removing ineligible survey participants (i.e. members who have moved to government quarters), deleting any inconsistent responses, as well as flagging "rental outliers" [Ref. 26:p. 2-8]. Rental outliers are generally treated in the same manner as homeowners, that is, a rental equivalency is used in lieu of the costs reported in the survey. Finally, in any case where the surveys are returned incomplete, the contractor will still record what information was collected, and PDC will refer back to the JUMPS tapes to obtain the missing information. If the required information still can't be found, the survey will be edited out as unusable.

Before PDC computes preliminary median housing costs, a fourth step, "Define/Revise Military Housing Areas (MHA's)" is conducted. As discussed earlier in this chapter, MHA's are defined by a set of zip codes within 20 miles or one hour commuting time from an installation. To update MHA's, DMDC relies on Postal Zip Code and County Code listings provided quarterly by a contracted "List Processing Company." Despite the fact that VHA surveys are generally conducted biennially, the Zip-to-MHA files are maintained continuously and can be updated several times per year.

There are approximately 330 Military Housing Areas in CONUS, Alaska, and Hawaii. For a specific zip code to be used in defining an MHA, a statistical representation of at least 30 usable survey respondents from that zip code is required. For zip codes from which less than 30 responses are received, a "County Cost Group" (CCG) system has been developed. This system is used to generate rates for the inadequately populated areas that can't be identified by MHA's. CCG's are groups of counties encompassing several zip codes identified by the Department of Housing and Urban Development as having similar housing costs. In lieu of the costs reported in the VHA survey, HUD provides the survey contractor

with fair market rents, determined by its own survey, for housing within each CCG [Ref. 30]. Of the population eligible to receive VHA, only 2% is defined by CCG's. There are currently 40 defined CCG's, and the MHA's and CCG's together account for all the zip codes in the United States [Ref. 26:p. A-10].

Once a revised set of MHA's is established, the median housing costs for those MHA's is determined. This process is essentially conducted by DMDC using what is known as a GPX computer program. The housing cost information obtained in the VHA survey is used to compute both local and national median housing costs (NMHC) for each paygrade and dependency status in each MHA and CCG. The GPX program calculates median costs for rent, utilities, maintenance, and liability and renter's insurance to be used in the VHA rate formulation. In cases where little or no data is received for a particular paygrade, the costs for that paygrade are imputed from the cost data available for adjacent paygrades. As described earlier in this chapter, for county cost groups, housing costs are determined from HUD provided fair market values.

**2. Phase II: Distribute Available Funding**

The amount of funding available for VHA in any given year can be determined in two ways. First, Public Law 96-343 states that the total amount DOD can spend on VHA in a fiscal year is limited to the amount from the previous year adjusted upward to reflect growth in the "Military Housing Cost Index." The military housing cost index is a housing component of the Consumer Price Index (CPI) which has been adjusted to reflect the consumption patterns of military service members. Secondly, Congress can place an additional limitation on VHA spending beyond that determined by law.

The first step in Phase II of the rate production process is to determine an accurate population for costing VHA allowances. Since allowance requirements are projected for inclusion in pay increases in the next fiscal year, DMDC simply uses the personnel end strength forecast

from the president's budget proposal to cost the VHA program. Once an updated population has been determined, PDC begins the initial computation of VHA program costs. Using an initial factor of .8 in the equation VHA = LMHC - Factor x NMHC, the Per Diem Committee and DMDC use the population data and survey results in the GPX program to compute initial rates for each paygrade and dependency status in each MHA. The output of the GPX program is a "Variable Housing Allowance Statistical Summary Report" which presents calculated VHA rates for each MHA. The report also lists the VHA rates as a percentage of BAQ, the sample size of the population surveyed by paygrade and dependency status, the number of respondents, the number of renters (vice homeowners), and all zip and County Cost Group codes in the respective MHA (see Appendix B).

Using the data from the Statistical Summary Report, the next step is to estimate the total VHA program cost. This task is simply done by multiplying the adjusted population by the computed local VHA rates for each paygrade and dependency status or:

**Total VHA Cost = [Local VHA Rate] x [Adjusted Population].**

The result is an estimated total program cost for the coming year.

The final step in the rate production process is to compare available funding against the estimated program cost and make revisions by adjusting the local rates if necessary. The amount of available funding is typically provided in the congressional budget by 1 October each year, although in recent years, congressional delays have pushed receipt of the budget as far forward as 1 January. If the projected program cost exceeds available funding in a given year, PDC acts to reduce the cost until it falls within available funding. This is done by gradually adjusting the factor in the VHA equation from .80 to some higher level until it produces a cost that matches funding. For example, in FY91, the funding authorized by congress for VHA was $1,215,000,000. However, using .80 as the factor in (LMHC - .80 NMHC) a total cost of $1,289,000,000 for the program was yielded. To place the program cost within the level of funding, the

factor in the equation was increased to .81809 so that the equation yielded a total cost of $1,215,000,000, an amount equal to the available funding. The effect of adjusting the equation factor to decrease total program costs is an increase in the "out of pocket" share of housing costs expected to be absorbed by the VHA recipient.

Once VHA rates are finalized, it is still possible to incur funding shortages during a given fiscal year. This can be caused by changes in the rank structure (promotions), or demographic changes in Navy personnel (i.e. many personnel being transferred to high cost areas). Admittedly, this situation has occurred, and DOD does not have a standard procedure for resolving such a problem. In the few years where overruns did occur, DOD apparently used a sort of "smoke and mirrors" approach, and transferred funds from another DOD account to resolve the problem. [Ref. 31]

After an acceptable factor is found for the VHA equation, a revised Statistical Summary Report is produced and provided to each of the service finance centers for use in calculating service members allowance.

## VI. ANALYSIS OF ADEQUACY STANDARDS AND THE VHA PROGRAM

### A. INTRODUCTION

As discussed in Chapter V, service members are compensated for housing costs based in part on the expenditures of other military personnel. Studies have shown, however, that DOD should focus on the price of housing rather than on housing expenditures. It is important to understand the difference between these two concepts. The price of housing relates to value as seen by members of the civilian community who are willing to pay certain amounts for housing based on their wage rate and desire for special amenities. Expenditures on the other hand, represent the total amount of money spent. The relationship between price and expenditure is seen in the economic equation:

**EXPENDITURE = PRICE X QUANTITY**

where:

1. Quantity relates to the units of housing consumed, or in this case the quality of housing. A unit of housing is assumed to be constant.
2. Price is the unit cost of housing and is assumed to vary by location.
3. Expenditure is simply the total amount of money spent for the housing consumed.

The price elasticity of demand is defined as the percentage of change in the quantity demanded of a good in response to a one percent change in the price. Consistent with this theory, when a household moves from location A to location B, where the price of housing is greater, that household will choose to consume less housing. In fact, empirical studies relating the price elasticities of demand for quantity and expenditure show that a 10% increase in price will result in increased expenditures of 0% to 5%. That is to say, the household will be paying more for less housing. [Ref. 32]

In paying more, the household must give up other non-housing goods and services which is a costs to the household. Additionally, they are consuming less housing and are therefore receiving less housing benefits. The combination is termed a loss of consumer surplus. That consumer surplus relates more closely to the price of housing than to expenditures supports the idea that DOD policy should focus on price rather than on expenditures as is currently done.

If the quantity of housing consumed by all service members were the same, then any change in price would be reflected in the expenditure and, therefore, in the compensation. This would then seem to be a fair system of compensation, however, all service members within the same paygrade and dependency status do not consume the same amount of housing. Those who live in government owned quarters are assured a minimum and consistent standard, while those who rely on the private sector must choose their level of housing based on what is available, their income or how much they are compensated, and their personal preferences. The military has no control over the quality of civilian housing in which a service member lives. In fact, the Government has no desire to do so as they feel that anywhere a service member chooses to live is adequate [Ref. 33]. This raises two key issues: why are there standards of adequacy, and is the system equitable?

First, if the adequacy of housing is dependent only on the preferences of individual service members, why do the Navy and DOD define standards of adequacy in such detail? Assuredly, detailed specifications are required in order to contract for the construction of family housing. But if the Navy is made up of a cross-section of society, then the opinions and preferences of those service members should reflect the opinions and preferences of society. If this is true, why doesn't the military specify housing to be constructed according to local preferences and not according to rigid guide specifications?

Second, given that the price of housing in a location is constant and the quantity consumed is not, then expenditures vary in a location according to the choices made in quality. As discussed above, when a household moves from one location to another, more expensive one, the household buys fewer units of housing, thus receiving less benefit. In the service member's case, as he consumes less housing his expenditure decreases relative to the price of housing. As a result, area compensation, which is based on expenditure, is reduced. Now the service member has an even lower income which effects his consumption choice due to the income elasticity of demand. Faced with higher housing costs and economic decision making, the service member will consume less and less housing. The opposite situation would also be true, that when a members moves to an area with a lower housing price, he will spend more for more housing. Again this would seem fair except that not all service members have a choice of living on- or off-base. This fact is evidenced by the substantial waiting lists for family housing found at many locations.[4] If all those who wanted to live in government owned quarters did so, there would not be a line to get in them. This lessens the impact of the statement that where a person lives is adequate because he choose to live there, and raises the question of whether the policy is equitable. Why should some members be subjected to the market forces and receive less benefit (either income or housing) while others are guaranteed a constant level of adequacy from location to location without experiencing variances in price or expenditure?

Compensations that are tied directly to housing on a use-or-lose basis are in-kind redistributions and are generally inefficient. When a service member is reimbursed for the cost of housing up to a limit, the member will tend to consume as much housing as possible even if it is more than

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[4]An informal survey of 11 randomly selected navy family housing offices in CONUS showed an average waiting list for a junior officer's two bedroom house to be between seven and 12 months.

he might otherwise consume. Additionally, if a member is required to live in housing at a predetermined level of adequacy he may be forced to spend his compensation in a way he would not normally choose. As DOD does not concern itself with the housing decisions made by military members living in civilian communities, and the effort required to ensure that a minimum level of adequacy has been met would be unreasonable, it would be useful for DOD to focus on the overall well-being of the member.

Economic theory of compensation and subsidy indicates that in general, it is cheaper for the Government to provide a cash subsidy than an in-hind allowance. An in-kind housing allowance will shift a household's budget constraint to the right allowing for increased consumption of housing. However, it doesn't allow for an increased consumption of other goods that is possible with a cash subsidy. A cash subsidy, in essence, increases the household's income giving it the capability to consume the level of housing and other goods that will give the highest utility possible within the new budget constraint. Depending on the shape of the various households' indifference curve, a household will be equally well-off with an in-kind allowance as with a cash subsidy of a lesser amount.

## B. ANALYSIS OF THE VHA PROGRAM

This analysis of the VHA program focuses on the content of the material presented in Chapter V, specifically, the VHA rate production process. The perspective for analysis is: How might the rate production process affect the level of adequacy of civilian family housing chosen by service members?

In Chapter V it was shown that there are ten steps to the VHA rate production process. Two aspects of that process affect the ability of service members to obtain <u>adequate</u> civilian housing. They are presented for analysis as follows.

### 1. Analysis of the Rate Equation VHA = LMHC - .8 NMHC

The first aspect of the rate process that warrants critical review is the equation **VHA = LMHC - .8 NMHC** used to calculate rates for each military paygrade and dependency status. Public Law 98-525 states that BAQ shall be set at 65% of the national median housing cost for each paygrade and dependency status, and a rate adjustment factor of .8 (from VHA = LMHC - .8 NMHC) will be used in the initial calculation of VHA rates. As a result, service members are required to absorb housing costs equal to 15% of the national median cost for housing, assuming they pay the local median for rent. For example, if the NMHC for all LT/O3's is $500 per month, the BAQ will be 65% of this or $325 per month. A LT living in San Francisco paying rent at the local median housing cost of $800 would have an allowance of $400 (VHA = 800 - .8x500). His total housing compensation, BAQ plus VHA, is $75 below his rent. This is 15% of the NMHC and must be paid out of pocket. The exact amount paid out of pocket thus depends on the members rent, some will pay more and some will pay less. Important questions raised here are: How was 80% chosen as an appropriate adjustment factor to use in calculating rates? Why is 15% of BAQ an appropriate amount of housing expense for service members to absorb?

To answer, the 80% of national median housing cost and 15% of BAQ figures apparently were not selected for any specific reason, rather, they were driven by economic factors. That is, they were determined as a result of limits placed on the funding of the VHA program in FY85, the first year the current rate equation was used. That year Congress authorized funding for the VHA program that was significantly less than the total program cost which had been estimated by DOD. Given this limited funding, DOD found it had to revise its VHA rates so that the program cost fell within Congress' limits. To do this, DOD experimented with the rate equation until the .8 factor was found to decrease rates so that the total cost fell to an acceptable level. Service members were

consequently expected to absorb the difference between their respective local median housing cost, and the amount funded by Congress--an average of 15% of BAQ for each service member. Subsequently, the .8 factor became permanent when it was made law by the FY85 Authorization Act.

When considering issues of adequacy in family housing, the fairness of the requirement that service members absorb part of their housing costs out of pocket must be questioned. Although members living in military family housing forego their BAQ and VHA allowances, they are not asked to give up an additional amount of their regular compensation in exchange for the housing they receive, nor are they required to pay for normal maintenance. In other words, to make service members living in civilian and military housing equally well off, wouldn't it be fair to ask those in military housing to pay the government amount equal to 15% of the BAQ for their paygrade, as well as forego their BAQ and VHA?

The 15% out of pocket requirement may have a profound effect on the housing choices made by service members who rely on the civilian community. Members will either (1) choose housing at a price higher than the amount of their BAQ and VHA and absorb some of the cost out of pocket, at the expense of other goods; or (2) choose less housing which is in the price range of their BAQ plus VHA, thus absorbing no cost out of pocket and allowing the consumption of additional goods.[5] In either case, the member is less well off than a peer living on base who is able to enjoy adequate housing without foregoing additional pay, or other goods and services.

The policy requiring members to absorb some of their housing costs contradicts the more elementary policy of ensuring that all members are afforded adequate housing. However, DOD seems to have justified this

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[5]A members choice to consume housing at a price less than his BAQ plus VHA does not increase the amount of disposable income. In such a case, 50% of the difference would be paid back to the government. The service member would keep the other 50% for maintenance, utility, and insurance expenses.

policy by stating that "whatever housing a service member chooses is adequate." Still, this is not necessarily the case. DOD has set specific standards of adequacy for housing which should pertain to all service members. To set strict standards for military family housing, and at the same time ignore considerations of adequacy for members living in the civilian community further delineates the lack of equity between the two. This problem is particularly disturbing in light of DOD's policy to rely primarily on the civilian community for the housing of its personnel.

### 2. Analysis of the VHA survey

A second aspect of the VHA rate production process which warrants criticism is the structure and methods of conducting the VHA survey. Specifically, in collecting data on housing costs for service members, the VHA survey gives no consideration to whether service members are reporting costs for housing that is adequate for their paygrade. For example, the survey may ask a member how many bedrooms are in his housing unit, but it doesn't ask how many dependents must share those bedrooms. If the same member requested military housing, he would be provided with enough bedrooms to assure that no more than two dependents (children) share a bedroom. For a given geographical area, that same member, with his BAQ plus VHA might only be able to afford housing which required three children to share a bedroom. However, such an inadequacy would not be reported in the VHA survey. The rent paid by that member would be reported in the survey, and subsequently used to update that members VHA rate.

The survey fails to collect costs for a whole range of attributes which constitute the Navy's definition of adequate. These include authorized size and space requirements such as the number of bedrooms, bathroom, laundry room, garage/carport; structural requirements; physical condition; and neighborhood characteristics including travel time to work. For reference purposes, the current VHA survey is provided as Appendix C.

Using the information as it is currently reported in the VHA survey, DOD really has no idea if its goal of "providing adequate housing to all its members" is being met. One way to consider the potential affect of this situation is to examine the case of the junior enlisted service member, say an E4, living in a high cost area. Because of a high cost of living, he will have to choose less housing to afford other goods, or choose to give up other goods to consume a normal (adequate for his paygrade) level of housing. It is possible that many service members such as the E4 are forced to choose inferior housing simply to "make ends meet." If all E4's in a given geographic area choose housing that is inadequate by DOD standards, they still would report the cost of that housing in the VHA survey as if it were adequate. The subsequent VHA rates for E4's in that area would be based on costs for inadequate housing. In turn, the new rates would still only allow those E4's to either obtain inadequate housing, or give up other goods.

The argument might be used that an E4 living in the civilian community should be provided only the opportunity to obtain housing commensurate with his income, or equivalent to his civilian peers of a similar level of income. However, military members differ from their civilian counterparts in that the member may not be able to choose where he lives: high versus low cost area, and on- versus off-base. A civilian always lives in the community and can choose a job based on location if he so desires. So, in order to keep members equally well off, housing opportunities and compensation should be such that service members are indifferent between living in on-base housing and in the community. To create this indifference, VHA allowances should provide members the opportunity to choose civilian housing equal to adequate military family housing. It is currently not known whether VHA allowances provide such an opportunity, and that determination cannot be made from the information reported in the VHA survey. The survey, in its present form, collects data on the <u>cost</u> of housing to service members, whether inadequate or

adequate. Instead, it should focus on the price of adequate housing. Recommendations for changes to the survey to create rates that reflect the price of adequate civilian housing are made in Chapter VII.

## VII. RECOMMENDATIONS AND CONCLUSION

### A. CONCLUSIONS

If the Navy is to maintain its goal of providing adequate equitable housing for all its personnel, attention must be given to those aspects of the family housing program which fall short of promoting that goal. The standard of adequacy for Navy family housing has been set. It is defined by the navy family housing policy manual and related codes and standards; and is exemplified by its housing assignment policies, the level of quality of new construction, and the maintenance of existing family housing. However, those military families which rely on the civilian community for housing are not afforded the opportunity to enjoy such a level of adequacy. VHA rate determination methods are not concerned with issues of adequacy and, thus, rates established by those methods may not ensure that a service member obtains family housing which meets the expectations and standards exemplified by government owned housing.

### B. RECOMMENDED CHANGES TO THE VHA PROGRAM

#### 1. Change the VHA Survey

To create the parity desired by DOD policy, modifications to the VHA rate production process must be made. Most significant of those modifications is that only data that reflects the price of civilian housing which is equal to adequate military family housing should be used. In other words, to provide the opportunity to obtain civilian housing on par with military family housing, VHA rates must be set at a level to provide total housing compensation equal to the price of that adequate housing. To determine the real price of adequate civilian housing, the data collected from the VHA survey must reflect the costs incurred by service members only for adequate housing and be modified to represent

real price. To do this, a redesign of the VHA survey questionnaire is required.

To determine whether a service member is living in civilian housing that is adequate by Navy standards, a comparison of the attributes of that housing to the attributes of adequate military housing should be made. For a civilian house to be considered adequate by the VHA survey, it should possess the same attributes and amenities as an adequate government owned house. The VHA survey questionnaire should be changed to ask questions of service members in each paygrade and dependency status about the absence, quantity, and availability etc. of attributes and amenities. For example, as outlined in Chapter IV, a Lieutenant/03 with one child is authorized at minimum a two bedroom, one bath, 865 SF home with kitchen, living room, dining room, laundry space, and carport/garage, each of certain minimum dimensions. For the same Lieutenant living in civilian housing, the VHA survey should ask questions about the absence and availability of each of those attributes present in the military family house. Questions asked by the survey would not be limited to the attributes listed above, but would include all the requirements, including size, maintenance, and neighborhood characteristics. Some of the questions asked in the survey might include:

1. How many dependents, other than your spouse, live with you?

___ 1-2 ___ 3-4
___ 2-3 ___ 5 or more

2. How many bedrooms are in your dwelling?

___ 1 ___ 4
___ 2 ___ 5 or more
___ 3

3. What is the approximate net square footage of your dwelling?

___ Less than 550 ___ 1150-1350
___ 550-750 ___ 1350-1550
___ 750-950 ___ 1550-1750
___ 950-1150 ___ Greater than 1750

4. Does your dwelling have a garage or carport?

___ Yes
___ No

5. Do you have utility connections available for laundry appliances in your dwelling unit?

___ Yes
___ No

The responses to questions such as these would then be used to determine (1) if a service member was living in civilian housing that was adequate for his paygrade, and (2) what that member was paying for adequate or inadequate housing. The recommendation here is that the costs reported for civilian housing with attributes meeting at least the minimum level of adequacy for each paygrade and dependency status be used in the VHA rate calculation. Similarly, the data for service members living in less than adequate civilian housing (as reported in the survey) should be excluded from use in the VHA rate calculation. This change would result in VHA rates which more accurately reflected the actual price of adequate civilian housing.

*a. Implications of Changes to the Survey*

The changes to the survey recommended above may have two significant affects on the VHA program. First, if the VHA survey is to change to focus on identifying the cost of civilian housing meeting specific adequacy requirements, a much larger sample population may be required to gain acceptable statistical responses. Survey administrators may find that a significant percentage of respondents report attributes about their housing which fail to meet adequacy requirements. For example, if administrators use the current 400,000 service member sample size, they may find for a particular MHA that fewer than 30 (the required representative sample) personnel in a specific paygrade and dependency status report that they live in adequate civilian housing. To overcome such a condition, a larger sample would be required. An answer may be in part to initially survey 100% of all eligible personnel to determine the

approximate number of personnel actually living in adequate housing. For those MHA's where a high percentage of personnel report living in inadequate housing, the population sample could be increased, and similarly decreased for areas where a high level of adequate housing is represented. Increasing the population sample size would, of course, increase the cost of administering the survey as well.

Secondly, changing the VHA survey will impact rate calculations. Given that housing costs (for adequate housing) for each paygrade and dependency status are identified to be much higher than currently reported, the Congress will either recognize these costs as legitimate and appropriate money accordingly or continue to place caps on the VHA appropriation. If funding continues to be limited, the rate adjusting factor in the equation VHA = LMHC - .8 NMHC will simply be increased to some higher value (i.e. .85, .90, .95 etc.). While this will give the impression that service members are absorbing more of their housing costs, the actual amount of their compensation will not change on the whole. If the Congress decides to set VHA funding at a level required to ensure all service members can obtain <u>adequate</u> civilian housing, then VHA program costs would reasonably be expected to increase significantly. Particularly in high cost areas, the impact of funding for adequate civilian housing could be tremendous.

**2. Change the VHA Rate Equation**

The current VHA rate formula **VHA = LMHC - .8 NMHC** requires service members receiving VHA to pay housing costs equal to 15% of their BAQ out of their pocket. This requirement is a second factor related to the inequity in housing adequacy between civilian community and military family housing. To put the adequacy of civilian housing back on par with military housing, the 15% out of pocket requirement should be eliminated. This would change the VHA equation to: **VHA = LMHC - .65 NMHC**. Because BAQ is set at 65% of the national median housing cost for each paygrade and dependency status, in affect, VHA rates would be calculated as the

difference between the local median housing cost for adequate housing and the amount of BAQ. In essence, a service member's BAQ plus VHA entitlement would be equal to the local median housing cost for his paygrade and dependency status. Consequently, the service member would not have to absorb any housing costs, and service members both on- and off-base would end up with the same amount of disposable income after housing expenses are incurred, thus promoting equality.

*a. Implications of Changing the Rate Equation*

The affects of changing the rate equation VHA = LMHC - .8 NMHC so that service members are not required to absorb any housing costs were partially addressed earlier in this chapter when the effects of changing the VHA survey were discussed. Specifically, the effect of such an action would be a pronounced increase in initial estimates of each fiscal year's total VHA program costs. Changing the equation so that members pay no cost out of pocket assumes that congress will fund the VHA program at such a level. However, that may not be the case and VHA administrators must continue adjusting the equation's factor so that total program cost matches approved funding. None the less, the initial estimate of total VHA costs should be calculated to require no "out of pocket" expenses and the estimate used for the program funding request each fiscal year.

**3. Change the Fair Market Rent Calculation for County Cost Groups**

The fair market rent system used to determine housing costs in County Cost Groups and provided by HUD for use in VHA rate calculations is inconsistent with methods used to calculate rates in Military Housing Areas. Although only a small percentage of personnel (2%) eligible for VHA live in County Cost Group Areas rather than MHA's, those personnel are none the less affected by the differences in the rate production methods. HUD fair market rates exclude costs for maintenance, and property and hazard insurance and, thus, do not produce VHA rates equitable to those

calculated for MHA's. In essence, people living in CCG's are being "short changed" by the fair market system of producing VHA rates.

It is recommended that further study be made to provide a reporting system for CCG's which more accurately reflects the total price of housing in those areas. Since the HUD fair market rates are derived from census reported data, the answer may be to extract additional data on maintenance and insurance costs from the census for inclusion in rent calculation. There is a problem with this solution, however, in that it relies on data from the census which, like the current VHA survey, does not address the issue of adequacy of service member's housing. A second alternative may be to expand the Military Housing Areas to include zip codes which currently lie in County Cost Groups. Service members would then be administered the VHA survey to report housing costs. In any case, further study is needed to determine the significance of the impact of the HUD system, and the optimum solution to eliminating its inequities.

## C. RECOMMENDATIONS FOR FURTHER STUDY

The study of the adequacy of military family housing and the VHA program conducted in this thesis has generated a number of issues related to, but not addressed in this thesis. These issues, which are discussed in the following paragraphs, may serve as interesting and useful topics for further study.

First, what are the cost implications to the VHA program recommended by this thesis? The investigation of the costs to create parity between military family housing and the civilian community housing afforded by variable housing allowances is a natural extension of the research conducted in this thesis. Such a study would be essential before any changes to the VHA program could be considered, and would serve to determine the feasibility of any changes. A cost benefit study may also be used to strengthen the argument that an inequity between military housing and VHA supported civilian housing exists.

A second question generated from the work performed in this thesis and recommended for further study is: What is the range of the inadequacy in civilian housing imposed on the various paygrades receiving VHA? This thesis has shown that service members receiving the VHA may live in inadequate housing. What hasn't been shown, however, is the extent to which housing may be inadequate for various paygrades. Specifically for lower grades (E1-E3) living in very high cost areas such as San Francisco, the level of VHA plus BAQ provided may still only allow the rental of grossly inadequate housing. A study conducted under this topic might include a local survey of a specific MHA such as Monterey to determine the range of adequate housing consumed by each of the officer and enlisted paygrades receiving VHA. Statistical methods might be used to determine "mean levels of adequacy" for each paygrade.

A study of the range of inadequacies in civilian housing recommended above leads to yet another possible topic. That is, to examine the "hidden costs" of not ensuring that military members are afforded the opportunity to obtain adequate housing. The loss of well-being associated with an inability to consistently obtain adequate housing, particularly for members in the lower paygrades, could certainly have an adverse impact on retention. Studies have shown that the quality and availability of housing is integral to a service member's decision to remain in the military. What might be specifically studied is the extent to which a member's career decisions are impacted by housing issues.

A final topic recommended for further study involves the investigation of spending behavior of service members receiving VHA. The Per Diem Committee of OSD feels that "whatever housing an individual chooses is adequate," regardless of price. The real question here though is: Is civilian housing an income superior good? That is, if more money were made available to an individual, would that individual spend all that money on additional housing, or would some of it be spent on other goods and services? Answering this question would determine whether service

members would seek out higher levels of adequacy in civilian housing if given larger amounts of VHA, or rather if they would prefer to live in less adequate housing if it meant that they would have a greater disposable income for other goods. Either way the system would be more equitable to the service members.

## APPENDIX A

## STANDARDS OF MAINTENANCE IN NAVY FAMILY HOUSING

### A. Structural Exterior.

The following are standards of maintenance for the exterior of family housing facilities:

1. Exterior Walls. An exterior wall is any wall that is exposed to the weather. All exterior walls shall be maintained in a structurally sound, weathertight condition, and in a good state of repair. The walls shall be free of noticeable pitting and corrosion, vegetation and animal life, deteriorated siding and trim, discoloration and graffiti, or other defects which would render an unsightly appearance to the exterior walls.

2. Roofing. All roofing, flashing, and gravel stops shall be maintained in a manner which preserves a weathertight seal and prevents corrosion and abnormal deterioration of individual components. Missing pieces shall be replaced to retain the original whole condition of the roof system.

3. Gutters, Downspouts, and Splash Blocks. Drains shall be maintained to function as originally designed to effectively channel run-off water away from the housing unit. Gutters and downspouts shall be maintained properly aligned and secured to the house with splash blocks correctly positioned to receive the impact of drainage water. Gutters and downspouts shall be kept free of debris or any obstruction.

4. Overhangs. Overhangs will be maintained in an aesthetically pleasing state of repair with fasciae and soffits properly secured. Bird screens and vents shall be maintained intact and free of corrosion.

5. Windows, Doors, Screens, and Shutters. Windows, doors, screens, and shutters will be maintained to operate smoothly and properly without binding, sticking, or other defects which would prevent their functioning in accordance with the design. Exterior doors, windows, and shutters shall be maintained in a manner which preserves the weathertight seal with caulking, glazing, and weatherstripping fully intact. New glass used for replacement work shall be the same thickness, type, and quality as the existing glass. Window screens and screen doors shall be maintained in good working order and free of torn fabric or frame defects to ensure that the screening function is effective. All hardware such as hinges, locks, strike plates, window operator mechanisms, door closures, springs, and so forth, shall be maintained free of corrosion or other defects which would prevent its operating as intended.

6. Miscellaneous Roof Structures. Chimneys, vent stacks, roof ventilators, or other items which pierce the roof shall be maintained to prevent leaking. All metal surfaces shall be maintained free of noticeable pitting and corrosion. Wind driven turbine ventilators shall be maintained free of corrosion or other defects which would prevent their operating as intended.

**B. Structural Interior.**

The following are standards of maintenance for the interior of family housing facilities:

1. Interior Walls. Interior walls shall be maintained free of damage, deterioration, cracks, or defective materials. The aesthetic appearance shall be free of noticeable discoloration or other defects which would render an unsightly appearance to the interior walls.

2. Concrete \floors. Concrete floors shall be maintained in such a way so as to present a pleasing appearance and shall be in a usable and safe condition, free of cracked, spalled, or broken areas, or cracks which adversely affect the structural integrity of the floor.

3. Subflooring. Subflooring and structural members shall be maintained in a safe and useable manner. Deteriorated subflooring members shall be repaired or replaced to retain the original whole condition of the floor.

4. Hardwood Flooring. All hardwood floors shall be maintained in an acceptable state of repair and with a smooth, glossy finish, free of damage, deterioration, or buckling.

5. Floor Coverings. All tile floor coverings shall be maintained free of cracks, chips, and torn or excessively worn material to provide floor coverings which are usable and pleasing in appearance.

6. Ceramic Tile. All ceramic tile floors shall be maintained free of loose, damaged, broken, missing, or cracked tiles and with joints properly sealed to provide the intended watertight surface.

7. Stairways. Stairway treads, risers, nosings, balustrades, handrails, and other structural members shall be maintained in a state of repair which provides a safe and usable system and presents an aesthetically pleasing appearance.

8. Ceilings. All ceilings and framing members shall be properly secured. The ceiling shall be free of holes or cracks. Badly soiled, defaced or water damaged surfaces, or other defects which would render an unsightly appearance to the ceiling are to be repaired to restore surfaces to a good condition.

9. Venetian Blinds and Shades. All venetian blinds and shades shall be maintained to operate smoothly and properly, and kept free of damaged slats, deteriorated tapes, cords, hardware, rails, or torn fabric.

10. Interior Trim. All interior trim shall be free of unsightly appearance. Surfaces shall be maintained smooth of chipped or peeling paint, exposed nails, cracks, rot, or termite damage.

11. Built-In Cabinetry. Cabinets, shelving, countertops, and similar items shall be maintained in a fully usable condition and with a pleasing appearance. Missing or inoperative hardware shall be replaced. The countertops shall be free of warped, marred, burned, or damaged areas.

12. House Accessories. Accessories such as mail slots, doorstops, mechanical door bells, door knockers, paper holders, soap trays, tumbler holders, towel bars, shower curtain rods, toilet seats, medicine cabinets, venetian blind brackets, curtain rod boards, closet pulley guides, house

numbers, dryer vents, smoke detectors, and so forth, shall be maintained free of defects and in a satisfactory functioning condition.

### C. Electrical

Preventive maintenance of electrical equipment and distribution system within each unit begins with the weatherhead. The electrical equipment, distribution panel, connections, grounds, outlets, switches, wiring, and lighting fixtures shall be maintained in a safe and usable condition. Receptacles and breakers with ground fault sensors shall be capable of properly detecting faults.

### D. Plumbing.

All plumbing systems and fixtures intrinsic to each unit and other housing real property facilities shall be maintained in a good and safe operating condition and free of leaks and drips. Domestic water lines shall be maintained from and including the service cut-off box. Waste and sewage lines shall be maintained to the connection at the sanitary sewer main. Gas lines shall be maintained up to the cut-off valve at the pressure regulator.

All sinks, tubs, toilets, basins, lavatories, showers, and so forth, shall be maintained to operate properly, drain freely, and be free of chips, cracks, or excessive discoloration. All fixtures that cannot be repaired shall be replaced with plumbing fixtures that are of equal quality and of the current state of the art. All replacement water closets shall be water saver type that use approximately 3 1/2 gallons per flush. Defective shower heads shall be replaced with a water saver shower head.

### E. Heating, Ventilation, and Air Conditioning (HVAC)

The required standard includes inspecting and maintaining heating, air conditioning, and ventilating systems in good operating condition. All materials and equipment furnished shall be of the same grade, quality, and size as the original construction. All filters will be replaced at least twice each year, prior to heating season and prior to air conditioning season. All filters will be of the size and type recommended by equipment manufacturers. Heating and air conditioning systems shall provide room air temperatures consistent with Government energy conservation guidelines.

### F. Appliances and Equipment

The maintenance, repair, or replacement of Government-owned household equipment and appliances are authorized by and subject to the restrictions, limitations, and approvals set forth in Chapter 15 of this manual. Appliances and equipment shall be maintained in good operating condition and will have a pleasing appearance. Appliances and equipment which cannot be adjusted, repaired, or which have exceeded their usable life shall be replaced.

## G. Painting

Painting shall include both the interior and exterior of the dwelling units. Touch-up or partial painting on interior or exterior of units will be accomplished as required to properly maintain housing assets. All new work and repainted areas shall be properly prepared and cleaned prior to paint application. Painted surfaces shall be smooth, completely covered, and free of brush marks and runs. Generally, the painting cycle spans 3 years for the interior and 4 years for the exterior. Workmanship shall conform to the quality standards established in NAVFAC MO-110, Paints and Protective Coatings.

## H. Grounds Maintenance

The following standards have been established for the maintenance of grounds.

1. Improved Areas. Grass shall not be allowed to exceed 4 inches in height and shall not be cut lower than 2 inches. After cutting, grass shall have a uniform height throughout, free of grass clippings in windows, on walks, drives, concrete pads, outdoor athletic courts, baseball diamonds, or on any adjacent paved or otherwise finished surface. Grass areas close or next to buildings, hydrants, parking lots, manholes, fences, trees, hedges and shrubs are included in the mowing operations. Trimming within the improved areas shall be accomplished each time such an area is mowed. Trimming includes the cutting back of all grass until even with the edges of all curbs, sidewalks, driveways, walls, fences, guy wires, poles, tree trunks, foundations, garbage pads, or any other objects. After trimming, no grass shall extend over and paved or similar surfaces, and there shall be no evidence of clippings on any finished surfaces. Joints in all paved areas including streets shall be maintained free of vegetation.

2. Semi-Improved and Unimproved Areas. Grass shall not be allowed to exceed 7 inches in height and shall not be less than 2 inches in height. Areas containing buildings, structures, parking lots, poles, trees, ditches, exposed utilities, fences, or other obstacles shall have adjacent areas to such obstruction trimmed to the same general height as the open areas. Cuttings shall not be allowed to build up to the extent of possible damage to the undergrowth.

3. Hedges and Shrubs. Hedges and shrubs shall be trimmed or pruned prior to attaining a new growth of 6 or more inches. After trimming or pruning, shrubs shall not be left with square or flat tops but shall be pruned to control the habit of growth. Wounds larger than 1 inch in diameter shall be covered with an approved wound dressing. All clippings shall be removed and disposed of at time of pruning or trimming operations or at the end of each day.

4. Weed and Brush Control. Measures will be undertaken to control excessive growth of weeds of fungi in improved and semi-improved areas. After weed control measures have been applied, no damage to surrounding areas or potential danger to human or animal life shall be evident. Procedures and herbicides used are subject to existing local and Federal regulations. All undesirable trees and bushes with a ball diameter of 12 inched or less and which are within the area to be moved will be cut and cleared from the area. Trees and bushes, which have been planted for aesthetic reasons or soil conservation measures, will be maintained.

5. Grasses and Ground Cover. Provisions shall be made for routine fertilizing, seeding, liming, and top dressing as necessary to maintain improved grass areas with a thick, uniform growth and uniform green color. Should bare spots become evident treatment to cure the cause shall be undertaken and measures to start or substitute new growth be initiated. These measures will be continued until the new growth is thick and strong. Fertilizer suitable for the purpose shall be applied at routine intervals to the base of trees and shrubs and covered with a mulch of suitable material.

6. Irrigation. Grounds maintenance care includes the periodic watering of grass areas, shrubs, trees, and other vegetation to maintain growth during hot, dry periods when the prevention of drying vegetation is necessary. Watering may also be required when assisting new growth or directly after fertilizing, liming, or seeding.

7. Leaf Collection. Fallen leaves shall be removed from all improved grassed or paved areas and shrubbery. Removal shall be done at interval which do not allow accumulation of leaves to the extent that the grassed areas underneath could become smothered or damaged. Disposal shall be in designated areas or off Government property.

8. Plant Disease and Insect Control. All infestations of diseases or insects in grassed areas, trees, or shrubbery shall be treated by means of applying approved control measures. The control measures shall stop the infestation with a minimal amount of damage to the infected area. Application of control measures will not cause damage to surrounding areas or create any danger to human or animal life. After the infestation is brought under control, steps will be taken to return any damaged vegetation to its condition prior to the infestation.

9. Policing of Grounds. Policing of improved and semi-improved areas shall be maintained to ensure the removal of debris such as paper, tree limbs and branches, refuse, cans, bottles, and other trash prior to each mowing and routinely during the non-growing season. Areas to be policed include grass, sidewalks, streets, parking lots, athletic fields, and all other areas within the housing complex.

10. Drainage Systems. Drainage structures including swales, ditches, inlets, curb inlets, catch basins, manholes, junction boxes, grills, piping, culverts, and headwalls shall be maintained free of debris, obstructions, brush, and weeds to provide a system that functions as originally designed and to effectively channel runoff water away from the housing area. Exposed areas shall be maintained free of missing or damaged grill; curb inlets or manhole covers; spalled, broken, or cracked concrete surfaces; cracks or holes in asphalt surfaces; and erosion along swales and ditches.

11. Concrete Surfaced Areas. All concrete surfaced areas such as patios, sidewalks, garbage can pads, or any other areas not receiving vehicular traffic shall be maintained in a structurally sound and safe condition and in a good state of repair, at the original alignment and elevation free of damage, spalls, and major cracks.

12. Master T.V. Antenna. The Navy shall be responsible for maintaining any master television antenna system identified on the Family Housing Property Account from antenna to wall outlet. All antenna, cable, fittings, terminal outlets, amplifiers, and all other parts, components, and equipment necessary to provide reception of very high frequency and ultra-high frequency local broadcasts shall be maintained to provide good reception of color or black and white transmission.

## APPENDIX B

# VARIABLE HOUSING ALLOWANCE STATISTICAL SUMMARY REPORT

MHA NO. DC053 MHA NAME: WASHINGTON, DC

| | ENLISTED | | | | | | | | WARRANT | | | PRIOR ENLISTED | OFFICERS | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | --OFFICERS-- | | | | | | 07 & | |
| | E-1 | E-2 | E-3 | E-4 | E-5 | E-6 | E-7 | E-8 | E-9 | W-1 | W-2 | W-3 | W-4 | O1E | O2E | O3E | O-1 | O-2 | O-3 | O-4 | O-5 | O-6 | ABOVE | TOTAL |
| BAQ WITH | $278.40 | | $282.30 | $314 | $381.30 | $402.00 | $435.30 | | $508.20 | | $448.40 | $529.50 | $480.00 | $377.70 | $495.30 | $678.00 | $781.80 | | |
| | $278.40 | | $282.30 | $314 | $381.30 | $402.00 | $435.30 | | $466.20 | $388.10 | $485.40 | $443.40 | $331.90 | $422.70 | $498.50 | $704.40 | | | |
| WITHOUT | $155.70 | | $216.30 | $282.30 | $307.40 | $385.50 | | | $385.50 | $360.10 | $469.50 | $382.80 | $278.40 | $417.00 | $561.30 | $635.40 | | | |
| | $175.20 | | $218.80 | $273.80 | $354.30 | $393.40 | | | $394.50 | $329.10 | $450.00 | $330.90 | $520.20 | $582.90 | | | | | |
| VHA RATES | .31311 | | .87279 | .7712 | .79313 | .76076 | .83004 | .72329 | .72538 | .33974 | .67761 | .54601 | .36934 | | | | | | |
| | | | .81408 | .88828 | .78813 | .74384 | .89119 | .87783 | .85113 | .76979 | .78960 | .58816 | .48477 | | | | | | |
| VHA AMOUNT | | | | | | | | | | | | | | | | | | | |
| WITH DEP | $254.21 | | $259.29 | $280.83 | $348.25 | $388.82 | $416.17 | $382.98 | $348.18 | $353.43 | $335.62 | $370.52 | $268.75 | | | | | | |
| | $254.48 | | $272.98 | $329.85 | $348.34 | $382.70 | $428.00 | $388.71 | $409.45 | $325.34 | $380.51 | $350.24 | $231.68 | | | | | | |
| W/O DEP | $142.17 | | $188.28 | $196.07 | $239.84 | $293.27 | $325.61 | $339.58 | $277.68 | $260.51 | $281.65 | $304.46 | $306.23 | | | | | | |
| | $180.15 | | $190.87 | $218.37 | $283.54 | $280.81 | $348.22 | $314.29 | $346.41 | $254.66 | $304.46 | $288.57 | | | | | | | |
| UTILITY AMOUNT | | | | | | | | | | | | | | | | | | | |
| WITH DEP | $97.11 | | $108.83 | $170.44 | $240.66 | $271.00 | $248.96 | $289.28 | $216.75 | $126.87 | $228.89 | $303.31 | $356.58 | | | | | | |
| | $85.80 | | $122.50 | $199.85 | $232.64 | $242.80 | $265.44 | $238.13 | $270.90 | $170.64 | $258.99 | $324.97 | | | | | | | |
| W/O DEP | $47.15 | | $68.70 | $103.48 | $145.45 | $178.85 | $193.62 | $205.44 | $174.86 | $93.52 | $191.02 | $250.36 | $289.81 | | | | | | |
| | $48.97 | | $74.44 | $118.34 | $186.29 | $171.38 | $221.77 | $158.25 | $229.19 | $133.58 | $251.18 | $269.66 | | | | | | | |
| POPULATION | 229 | 511 | 1878 | 3791 | 4875 | 4591 | 3211 | 1278 | 884 | 38 | 235 | 250 | 180 | 88 | 156 | 747 | 1112 | 931 | 4944 | 6679 | 7238 | 4236 | 316 | 47984 |
| # OVERSEAS | 1 | 8 | 24 | 113 | 155 | 115 | 93 | 19 | 8 | 8 | 7 | 4 | 3 | 0 | 4 | 11 | 6 | 10 | 58 | 75 | 80 | 42 | 2 | 845 |
| ARMY-WITH | 71 | 128 | 304 | 1184 | 1351 | 1497 | 1198 | 479 | 209 | 24 | 131 | 158 | 102 | 5 | 12 | 97 | 156 | 97 | 1028 | 1889 | 2388 | 1079 | 81 | 13647 |
| WITHOUT | 1 | 9 | 131 | 551 | 503 | 336 | 178 | 45 | 12 | 4 | 17 | 11 | 7 | 6 | 5 | 19 | 227 | 189 | 623 | 357 | 158 | 61 | 4 | 3454 |
| NAVY-WITH | 145 | 293 | 453 | 592 | 817 | 1054 | 833 | 328 | 188 | 0 | 28 | 19 | 28 | 26 | 43 | 241 | 72 | 75 | 721 | 1412 | 1767 | 1189 | 102 | 10326 |
| WITHOUT | 2 | 13 | 223 | 419 | 594 | 408 | 111 | 28 | 18 | 0 | 3 | 2 | 15 | 22 | 35 | 281 | 163 | 610 | 351 | 171 | 71 | 2 | 2 | 3544 |
| USMC-WITH | 2 | 10 | 120 | 164 | 232 | 198 | 213 | 119 | 57 | 8 | 8 | 4 | 8 | 1 | 20 | 0 | 1 | 13 | 265 | 428 | 308 | 154 | 20 | 2353 |
| WITHOUT | 0 | 2 | 79 | 91 | 72 | 88 | 37 | 10 | 3 | 2 | 1 | 0 | 2 | 0 | 1 | 0 | 5 | 11 | 77 | 57 | 26 | 6 | 3 | 554 |
| USAF-WITH | 7 | 45 | 241 | 552 | 821 | 707 | 855 | 215 | 150 | | | | | 32 | 38 | 305 | 100 | 90 | 786 | 1408 | 1673 | 844 | 89 | 8730 |
| WITHOUT | 1 | 8 | 113 | 212 | 318 | 217 | 129 | 35 | 9 | | | | | 12 | 13 | 47 | 201 | 172 | 504 | 257 | 125 | 51 | 3 | 2425 |
| USCG-WITH | 0 | 1 | 4 | 22 | 42 | 88 | 52 | 15 | 18 | | | 44 | 53 | 32 | 0 | 0 | 22 | 56 | 204 | 240 | 160 | 132 | 13 | 1196 |
| WITHOUT | 0 | 2 | 8 | 24 | 27 | 19 | 7 | 1 | 2 | | | 3 | 2 | 1 | 0 | 0 | 18 | 47 | 45 | 22 | 6 | 3 | 0 | 237 |
| PHS-WITH | | | | | | | | | | | | | | | 1 | 1 | 12 | 9 | 48 | 177 | 374 | 579 | 23 | 1235 |
| WITHOUT | | | | | | | | | | | | | | | 0 | 0 | 17 | 9 | 33 | 79 | 82 | 67 | 6 | 295 |
| SAMPLE SIZE | 23 | 501 | 277 | 146 | 103 | 211 | 480 | 719 | 851 | 32 | 228 | 246 | 177 | 98 | 152 | 125 | 1105 | 919 | 394 | 246 | 419 | 583 | 264 | 8079 |
| # RESPONSE | 3 | 41 | 129 | 189 | 148 | 220 | 266 | 305 | 289 | 11 | 82 | 89 | 73 | 87 | 87 | 79 | 531 | 902 | 407 | 273 | 373 | 431 | 158 | 4763 |
| # RENTERS | 3 | 38 | 124 | 187 | 118 | 139 | 127 | 117 | 89 | 7 | 30 | 34 | 30 | 44 | 57 | 25 | 449 | 352 | 169 | 66 | 67 | 54 | 22 | 2339 |
| % RENTERS | 100% | 95% | 98% | 99% | 80% | 83% | 48% | 38% | 31% | 84% | 48% | 38% | 41% | 68% | 66% | 32% | 85% | 70% | 42% | 24% | 24% | 13% | 14% | |

WMA COMPOSITION:

WASHINGTON NAT'L AIRPORT, WASHINGTON, DC 20001
WALTER REED ARMY MED CTR, WASHINGTON, DC 20012
AROTC, GEORGETOWN UNIV, WASHINGTON, DC 20057
DAVID TAYLOR MODEL BASIN, BETHESDA, MD 20084
DEPARTMENT OF THE ARMY, WASHINGTON, D.C., 20310
FORT LESLEY J. MCNAIR, WASHINGTON, DC 20319
ANDREWS AIR FORCE BASE, WASHINGTON, DC 20331
AIR FORCE SYSTEMS COMMAND, ANDREW AFB, DC, 20334
WASHINGTON NAVY YARD, WASHINGTON, DC 20374
HQ, U.S.MARINE CORPS, ARLINGTON, VA 20380
HQ, U.S. COAST GUARD, WASHINGTON, DC 20590
AFROTC, UNIV OF MARYLAND, COLLEGE PARK, MD 20742
NAVAL MEDICAL COMMAND, BETHESDA, MD 20814
MARINE BARRACKS, WASHINGTON, DC 20003
NAT'L NAVAL MED CENTER, BETHESDA, MD 20014
AFJAG SCHOOL, HOWARD UNIVERSITY, WASHINGTON, DC 20059
DEFARTMENT OF DEFENSE, PENTAGON, WASH., DC 20301
TOPOGRAPHIC STATION, WASHINGTON, DC 20315
DEPARTMENT OF AIR FORCE, WASHINGTON, DC 20330
BOLLING AIR FORCE BASE, WASHINGTON, DC 20332
NAVY DEPARTMENT, WASHINGTON, DC 20350
NAVAL RESEARCH LABORATORY, WASHINGTON, DC 20375
NAVAL AIR FACILITY-ANDREWS, WASHINGTON, DC 20390
BRANDYWINE COMM STATION, BRANDYWINE, MD 20613
HARRY DIAMOND LABS, ADELPHIA, MD 20783
NAV SURFACE WEAPONS CTR, SILVER SPRING, MD 20910

MHA NO. DC053 MHA NAME: WASHINGTON, DC

NAVAL AUDIT SERVICE HQ, FALLS CHURCH, VA 22041
DEFENSE MANPOWER DATA CENTER, ROSSLYN,VA 22209
ARLINGTON HALL STATION, ARLINGTON, VA 22212
CAMERON STATION, ALEXANDRIA, VA 22314
FORT BELVOIR, VA 22060
FORT MYER, VA 22211
U.S.M.C., HENDERSON HALL, ARLINGTON, VA 22214
HOFFMAN BUILDINGS, ALEXANDRIA, VA 22331

DIST OF COLUMBIA COUNTY, WASHINGTON, D.C. FIPS CODE IS 11001 HUD CCG IS 833

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 20001 | 20002 | 20003 | 20004 | 20005 | 20006 | 20007 | 20008 | 20009 | 20010 | 20011 | 20012 | 20013 | 20015 | 20016 | 20017 | 20018 | 20019 |
| 20020 | 20024 | 20026 | 20029 | 20030 | 20032 | 20033 | 20035 | 20036 | 20037 | 20038 | 20039 | 20040 | 20042 | 20043 | 20044 | 20045 | 20046 |
| 20047 | 20048 | 20049 | 20050 | 20051 | 20052 | 20053 | 20055 | 20056 | 20057 | 20058 | 20059 | 20060 | 20061 | 20062 | 20063 | 20064 | 20065 |
| 20066 | 20067 | 20068 | 20069 | 20070 | 20071 | 20073 | 20074 | 20075 | 20076 | 20077 | 20080 | 20081 | 20082 | 20084 | 20088 | 20090 | 20097 |
| 20098 | 20201 | 20202 | 20203 | 20204 | 20205 | 20206 | 20207 | 20208 | 20209 | 20210 | 20211 | 20212 | 20213 | 20214 | 20215 | 20216 | 20217 |
| 20218 | 20219 | 20220 | 20221 | 20222 | 20223 | 20224 | 20225 | 20226 | 20227 | 20228 | 20229 | 20230 | 20231 | 20233 | 20234 | 20235 | 20239 |
| 20240 | 20241 | 20242 | 20244 | 20245 | 20250 | 20251 | 20252 | 20260 | 20261 | 20265 | 20266 | 20268 | 20276 | 20301 | 20305 | 20306 | 20307 |
| 20310 | 20314 | 20315 | 20317 | 20318 | 20319 | 20324 | 20330 | 20332 | 20333 | 20334 | 20335 | 20336 | 20337 | 20338 | 20340 | 20350 | 20360 |
| 20361 | 20362 | 20363 | 20370 | 20371 | 20372 | 20373 | 20374 | 20375 | 20376 | 20380 | 20388 | 20389 | 20390 | 20391 | 20392 | 20393 | 20394 |
| 20395 | 20396 | 20397 | 20398 | 20401 | 20402 | 20403 | 20404 | 20405 | 20406 | 20407 | 20408 | 20409 | 20410 | 20411 | 20412 | 20413 | 20414 |
| 20415 | 20416 | 20417 | 20418 | 20419 | 20420 | 20421 | 20422 | 20423 | 20424 | 20425 | 20426 | 20427 | 20428 | 20429 | 20430 | 20431 | 20432 |
| 20433 | 20435 | 20436 | 20437 | 20438 | 20439 | 20440 | 20441 | 20442 | 20444 | 20445 | 20446 | 20447 | 20448 | 20449 | 20450 | 20451 | 20453 |
| 20454 | 20456 | 20460 | 20461 | 20462 | 20463 | 20468 | 20469 | 20470 | 20472 | 20500 | 20501 | 20502 | 20503 | 20504 | 20505 | 20506 | 20507 |
| 20508 | 20510 | 20515 | 20520 | 20521 | 20523 | 20524 | 20525 | 20526 | 20527 | 20530 | 20531 | 20532 | 20533 | 20534 | 20535 | 20536 | 20537 |
| 20538 | 20539 | 20540 | 20541 | 20542 | 20543 | 20544 | 20545 | 20546 | 20547 | 20548 | 20549 | 20550 | 20551 | 20552 | 20553 | 20554 | 20555 |
| 20557 | 20558 | 20559 | 20560 | 20565 | 20566 | 20570 | 20571 | 20572 | 20573 | 20575 | 20576 | 20577 | 20578 | 20579 | 20580 | 20581 | 20582 |
| | | | | 20585 | 20586 | 20590 | 20591 | 20594 | 20595 | 20597 | 20599 | 20892 | 20894 | | | | |

MONTGOMERY COUNTY, MARYLAND FIPS CODE IS 24031 HUD CCG IS 833

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 20014 | 20034 | 20702 | 20703 | 20704 | 20720 | 20727 | 20729 | 20730 | 20731 | 20734 | 20750 | 20753 | 20760 | 20766 | 20767 | 20768 | 20795 |
| 20812 | 20813 | 20814 | 20815 | 20816 | 20817 | 20818 | 20832 | 20833 | 20834 | 20837 | 20838 | 20839 | 20841 | 20842 | 20849 | 20850 | 20851 |
| 20852 | 20853 | 20854 | 20855 | 20856 | 20857 | 20858 | 20859 | 20860 | 20861 | 20862 | 20866 | 20868 | 20871 | 20872 | 20874 | 20877 | 20878 |
| 20879 | 20880 | 20882 | 20884 | 20885 | 20886 | 20895 | 20896 | 20898 | 20899 | 20901 | 20902 | 20903 | 20904 | 20906 | 20907 | 20908 | 20910 |
| | | | | | | | | 20911 | 20912 | | | | | | | | |

PRINCE GEORGES COUNTY, MARYLAND FIPS CODE IS 24033 HUD CCG IS 833

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 20021 | 20022 | 20023 | 20027 | 20028 | 20031 | 20331 | 20593 | 20613 | 20623 | 20705 | 20706 | 20707 | 20708 | 20710 | 20712 | 20716 | 20722 |
| 20735 | 20737 | 20740 | 20742 | 20743 | 20744 | 20745 | 20746 | 20747 | 20748 | 20789 | 20770 | 20771 | 20772 | 20775 | 20780 | 20781 | 20782 |
| | | 20783 | 20784 | 20785 | 20786 | 20787 | 20788 | 20790 | 20791 | 20799 | 20801 | 20822 | 20840 | 20870 | 20890 | | |

ARLINGTON COUNTY, VIRGINIA FIPS CODE IS 51013 HUD CCG IS 833

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 22201 | 22202 | 22203 | 22204 | 22205 | 22206 | 22207 | 22209 | 22210 | 22211 | 22212 | 22213 | 22214 | 22215 | 22216 | 22217 | 22218 | 22222 |
| | | | | | | | 22223 | 22225 | 22226 | 22227 | 22250 | | | | | | |

FAIRFAX COUNTY, VIRGINIA FIPS CODE IS 51059 HUD CCG IS 833

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 22003 | 22015 | 22020 | 22021 | 22024 | 22027 | 22037 | 22039 | 22041 | 22042 | 22044 | 22060 | 22066 | 22067 | 22070 | 22071 | 22079 | 22081 |
| 22082 | 22090 | 22091 | 22092 | 22093 | 22094 | 22095 | 22096 | 22101 | 22102 | 22103 | 22106 | 22109 | 22116 | 22119 | 22120 | 22121 | 22122 |
| | 22124 | 22150 | 22151 | 22152 | 22153 | 22156 | 22158 | 22159 | 22160 | 22161 | 22180 | 22183 | 22184 | 22185 | 22309 | 22310 | 22312 |

CITY OF ALEXANDRIA VIRGINIA FIPS CODE IS 51510 HUD CCG IS 833

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 22301 | 22302 | 22303 | 22304 | 22305 | 22306 | 22307 | 22308 | 22311 | 22313 | 22314 | 22320 | 22322 | 22331 | 22332 | 22333 | 22334 | 22336 |

CITY OF FAIRFAX VIRGINIA FIPS CODE IS 51600 HUD CCG IS 833

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 22030 | 22031 | 22032 | 22033 | 22035 | 22038 | 22181 | 22182 | | | | | |

CITY OF FALLS CHURCH VIRGINIA FIPS CODE IS 51610 HUD CCG IS 833

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | 22040 | 22043 | 22046 | 22047 | 22048 | | | | | | |

## APPENDIX C

## VARIABLE HOUSING ALLOWANCE DATA COLLECTION FORM

THE OFFICE OF THE ASSISTANT SECRETARY OF DEFENSE
WASHINGTON, D C. 20301-4000

FORCE MANAGEMENT
AND PERSONNEL

2 MAR 90

SUBJECT: Spring 1990 Variable Housing Allowance (VHA) Survey

TO: Survey Participant

You have been selected to participate in this year's housing cost survey. The information you give will help establish Variable Housing Allowance (VHA) rates for your area. The VHA is based on the typical costs incurred by Service members living in each area in the United States (including Alaska and Hawaii) who live off post or base and receive a Basic Allowance for Quarters (BAQ). The VHA payments are to help defray housing costs. The VHA is also paid to Service members assigned (PCS) overseas whose families reside in the United States (including Alaska and Hawaii).

It is important that you provide accurate figures on this VHA Data Collection Form. We ask that you take this form home and use your records and receipts to help fill in the amounts you actually spend. If you own a home, your response will help us identify the characteristics of your house for determining its rental equivalent. The importance of our having accurate information may require that your responses be verified by a government audit agency. Please keep any records and receipts you used in determining your responses for at least 12 months after completing the form.

The VHA is a valuable entitlement for men and women of the Uniformed Services. The time and effort you spend to fill out your form accurately will enable us to set fair VHA rates and maintain the integrity and credibility of the program. Please return your completed survey form to your administrator promptly.

Donald W. Jones
Lieutenant General, USA
Deputy Assistant Secretary
(Military Manpower & Personnel Policy)

PER DIEM
TRAVEL AND TRANSPORTATION
ALLOWANCE COMMITTEE

# Variable Housing Allowance Data Collection Form

* * DO NOT STAPLE OR FOLD THIS FORM * *

## MARKING DIRECTIONS

- Use only a No 2 black lead pencil.
- Read each question carefully. Make a HEAVY BLACK MARK that FILLS THE OVAL next to your answer.
- Please do not make stray marks of any kind

INCORRECT MARKS ✗ ✓ ○ ⊖ CORRECT MARK ●

- If the question is to be enswered with numbers, you should:
  1) Write the numbers in the boxes, meking sure thet the LAST number is elweys pleced in the RIGHT-hend box.
  2) Fill in the unused boxes with zeros.
  3) Mark the MATCHING OVAL BELOW EACH BOX.

EXAMPLE: My everege TOTAL monthly utility costs ere (round off to the nearest doller): $ 0 5 6

Use Soft Lead Pencil Only

## PRIVACY NOTICE

AUTHORITY: 10 USC 136

PRINCIPAL PURPOSE OR PURPOSES: Information collected in this survey is used to sample ettitudes end/or discern perceptions of socie! problems observed by service members end to support edditional menpower reseerch activities. This information will essist in the formuletion of policies which may be needed to improve the working environment.

ROUTINE USES: None

DISCLOSURE: Voluntary. Failure to respond will not result in eny penelty to the respondent. However, meximum particlpetion is encoursged so thet dete will be complete end representetive.

**The information you provide on this form is subject to verification by a government audit agency.**

1. What service ere you in?

○ Army
○ Navy
○ Marine Corps
○ Air Force
○ Coast Guard
○ Public Health Service
○ National Oceenic end Atmospheric Administretion

2. What is your pay grede?

| Enlisted | Werrent | Commissioned Officer | |
|---|---|---|---|
| ○ E-1 | ○ W-1 | ○ O-1E (over 4 yeers enlisted) | |
| ○ E-2 | ○ W-2 | ○ O-2E (over 4 yeers enlisted) | |
| ○ E-3 | ○ W-3 | ○ O-3E (over 4 years enlisted) | |
| ○ E-4 | ○ W-4 | ○ O-1 | |
| ○ E-5 | | ○ O-2 | |
| ○ E-6 | | ○ O-3 | |
| ○ E-7 | | ○ O-4 | ○ O-6 |
| ○ E-8 | | ○ O-5 | ○ O-7 or above |
| ○ E-9 | | | |

3. What is your Social Security Number?

Write the numbers in the boxes.

Then fill in the matching ovals.

4. Whet is your merital stetus?

○ Married
○ Not merried

5. Pleese enter the ZIP Code for your permenent duty (PCS) stetion in the 50 United Stetes.

DUTY ZIP CODE

○ NOT APPLICABLE. Post, base, or homeport outside of the 50 United Stetes.

- If in see billet, enter the ZIP Code of your UNITED STATES HOME-PORT, not your FPO/APO.
- If you don't know your ZIP Code, ask someone.
- Do not enter the ZIP Code of a TDY/TAD locetion.

6. Do you presently receive e Basic Allowance for Quarters (BAQ) et either the WITH or WITHOUT dependents rete?

○ YES, I receive BAQ at the WITHOUT dependents rate.
○ YES, I receive BAQ at the WITH dependents rate
○ NO, I live in government quarters and receive only e PARTIAL BAQ → STOP. Sign and return the survey form
○ NO, I do NOT receive BAQ → STOP. Sign and return the survey form

Use Soft Lead Pencil Only

7. Mark the location of your residence at your permanent duty station.
   - ○ Within the 50 United States
   - ○ Outside the 50 United States → Do your dependents also live outside the 50 United States?
     - ○ No
     - ○ Yes

**NOTE**

- If you live OUTSIDE the 50 United States and are NOT MARRIED, STOP. Sign and return the survey form.
- If you receive BAQ at the WITH DEPENDENTS rate and both you and your dependents are living OUTSIDE the 50 United States, STOP. Sign and return the survey form.

8. Enter your RESIDENCE ZIP CODE at right. THIS RESIDENCE ZIP CODE IS CRITICAL. →

RESIDENCE ZIP CODE

| | | | | |
|---|---|---|---|---|
| | | | | |
| ⓪ | ⓪ | ⓪ | ⓪ | ⓪ |
| ① | ① | ① | ① | ① |
| ② | ② | ② | ② | ② |
| ③ | ③ | ③ | ③ | ③ |
| ④ | ④ | ④ | ④ | ④ |
| ⑤ | ⑤ | ⑤ | ⑤ | ⑤ |
| ⑥ | ⑥ | ⑥ | ⑥ | ⑥ |
| ⑦ | ⑦ | ⑦ | ⑦ | ⑦ |
| ⑧ | ⑧ | ⑧ | ⑧ | ⑧ |
| ⑨ | ⑨ | ⑨ | ⑨ | ⑨ |

**IMPORTANT**

If you are MARRIED and maintain a SEPARATE RESIDENCE for your spouse/dependents, enter your SPOUSE/DEPENDENTS' ZIP Code.

**IN THE FOLLOWING QUESTIONS, "RESIDENCE" REFERS TO THE RESIDENCE WHOSE ZIP CODE YOU ENTERED IN QUESTION 8.**

9. Is the "residence" government-owned or -leased housing?
   - ○ Yes → STOP. Sign and return the survey form
   - ○ No

10. Do your spouse and/or dependents live in the "residence?"
    - ○ Does not apply. I have no spouse or dependents
    - ○ Yes
    - ○ No

11. If you share housing costs with non-family members, what portion of the monthly housing costs for the "residence" are you paying?
    - ○ Does not apply. I/my family pay all costs (100%)
    - ○ None → STOP. Sign and return the survey form
    - ○ 1% to 9%
    - ○ 10% to 19%
    - ○ 20% to 29%
    - ○ 30% to 39%
    - ○ 40% to 49%
    - ○ 50% to 59%
    - ○ 60% to 69%
    - ○ 70% to 79%
    - ○ 80% to 89%
    - ○ 90% to 99%

12. What type of housing is the "residence?"
    - ○ Single-family, detached home
    - ○ Semi-detached (row/townhouse/duplex)
    - ○ Apartment (owned or rented)
    - ○ Mobile home
    - ○ Other (e.g., private vessel)

13. How many bedrooms are there in the "residence?" (Count any room that is used or could be used as a bedroom.)
    - ○ 1 or efficiency
    - ○ 2
    - ○ 3
    - ○ 4
    - ○ 5 or more

14. How long does it take you to get from the "residence" to your place of duty (commuting time) on a typical day?
    - ○ Does not apply
    - ○ 30 minutes or less
    - ○ 31 to 60 minutes
    - ○ 61 minutes or more

15. Do you RENT or OWN the "residence?"
    - ○ Neither, live in government-owned or -leased housing → STOP. Sign and return survey form
    - ○ Neither, live with friends/relatives and PAY NO COSTS → STOP. Sign and return survey form.
    - ○ Neither, live in other accommodations → STOP. Sign and return survey form
    - ○ RENT
    - ○ OWN

16. How long have you RENTED or OWNED the "residence?"
    - ○ 3 months or less
    - ○ 4 to 6 months
    - ○ 7 to 12 months
    - ○ 13 to 24 months
    - ○ 25 to 36 months
    - ○ 37 to 48 months
    - ○ 49 to 59 months
    - ○ 5 to 10 years
    - ○ 11 to 20 years
    - ○ 21 or more years

If "RENT," continue with Question 17.
If "OWN," go to Question 21.

## FOR RENTERS ONLY

17. How often are rent payments for the "residence" due?
    - ○ Monthly
    - ○ Twice a month
    - ○ Every two weeks
    - ○ Weekly
    - ○ Other

18. How much total RENT is paid for the "residence" PER PERIOD specified in Question 17? (For example, if it is $245, enter 0245. Include RENT only. Other housing costs will be asked for later.) → $ .00

DOLLARS per period

| | | | |
|---|---|---|---|
| | | | |
| ⓪ | ⓪ | ⓪ | ⓪ |
| ① | ① | ① | ① |
| ② | ② | ② | ② |
| | ③ | ③ | ③ |
| | ④ | ④ | ④ |
| | ⑤ | ⑤ | ⑤ |
| | ⑥ | ⑥ | ⑥ |
| | ⑦ | ⑦ | ⑦ |
| | ⑧ | ⑧ | ⑧ |
| | ⑨ | ⑨ | ⑨ |

19. When you first rented the "residence," did you pay a FINDER'S FEE to an agent in order to obtain the "residence?" DO NOT INCLUDE SECURITY DEPOSITS
    - ○ Yes
    - ○ No → GO TO QUESTION 22

Use Soft Lead Pencil Only

20 If you paid a FINDER'S FEE, how much was this fee?

Dollar Amount of Fee

Write the numbers in the boxes → $ .00

Then fill in the matching ovals. →

GO TO QUESTION 22

## FOR OWNERS ONLY

The next question is important for current research on homeowners' costs.

21. What is your monthly house payment for the "residence?" → $ .00 DOLLARS per month

(Include the PRINCIPAL AND INTEREST on all mortgages or trusts, real estate TAXES, and homeowner's INSURANCE. Also include land lease, mobile home lot rental, or berthing fees, if applicable. Other housing costs such as utility and maintenance costs, etc. will be asked for later (EXAMPLE: If your payment is $550, enter 0550.)

## FOR RENTERS AND OWNERS

22. Over the last 12 months, what was the AVERAGE MONTHLY cost of all utilities (except telephone) paid separately from other rental or home ownership costs?

○ DOES NOT APPLY. No utilities are paid separately

○ Do not have a basis for estimating utility costs.

For each utility, add all costs for the LAST 12 MONTHS and divide by 12. (If you do not know the costs for all 12 months, ask a neighbor in a similar residence for estimates for the missing months.)

Enter the average monthly cost for each utility in the space below, then enter the TOTAL at the right → $ DOLLARS per month

| | Monthly Average |
|---|---|
| Electricity | $ |
| Natural Gas/Propane | $ |
| Fuel Oil | $ |
| Wood/Coal | $ |
| Water/Sewer | $ |
| Garbage | $ |
| TOTAL | $ |

23. Enter the AVERAGE MONTHLY maintenance cost paid for the UPKEEP of the "residence." Round off to the nearest dollar.

○ No maintenance costs are paid separately

DOLLARS per month → $ .00

- INCLUDE only maintenance such as plumbing, electrical, heating/cooling system or structural repairs, yard upkeep, etc.
- DO NOT INCLUDE the cost of home improvements (e.g., remodeling, new roof, new furnace, major appliances), new shrubs, new fences, or other additions.

EXAMPLE: If your cost is $25 per month, enter 025

24. Enter the AVERAGE MONTHLY cost of any of the following housing expenses for the "residence:" condominium fee; homeowners' association fee; property and hazard insurance, if NOT included in Question 21.

Fill in the grid for EACH expense you do have OR mark "None" for EACH expense you do not have.

| | Condominium Fee | Homeowners' Assoc. Fee | Property & Hazard Insurance (If not included in Q. 21) |
|---|---|---|---|
| | ○ None | ○ None | ○ None |
| DOLLARS per month | $ | $ | $ |

← Write the numbe the box

← Then fill in the matching ovals.

PLEASE BE SURE TO READ THE STATEMENT BELOW BEFORE SIGNING.

THE INFORMATION I HAVE PROVIDED IS ACCURATE TO THE BEST OF MY KNOWLEDGE. (Before signing this form, please review questions 5, 8, and 17 through 24. Make sure you have answered them correctly and where you entered numbers, make sure you have filled in the matching ovals. THANK YOU.)

PRINT Last Name, First Name

Signature

Date (Year/Month/Day)

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